Chapter 0
Front Cover

OKIDATA

MICROLINE®
Models
ML395
&
ML395C
Printers

Printer Handbook

Chapter 1
Setup - Preliminaries

Setup - Preliminaries

After unpacking the printer, there are a few minor tasks that must be performed before you can begin.

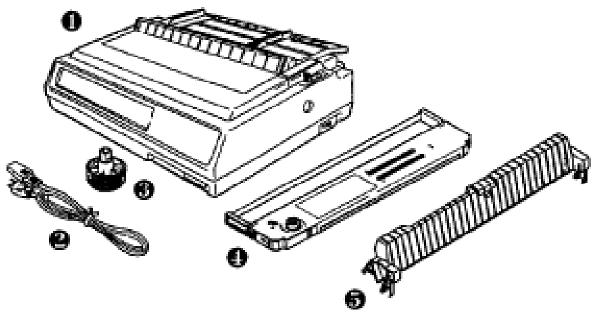
Removing the Shipping Restraint

1. Open front cover of printer.
2. Remove shipping restraint located under printhead.

Note:

It's a good idea to save the shipping restraint and the packing material in case you ever need to ship the printer.Unpack your printer and make sure you have the following items:

1) ML 395 Printer
2) Power cord
3) Platen knob
4) Ribbon cartridge
5) Sheet Separator



If you are missing any of these items, contact your dealer.

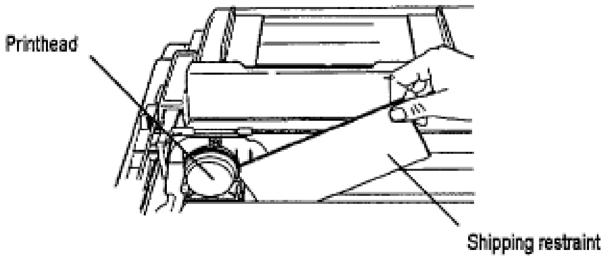
Preliminaries - Removing the Shipping Restraint

Preliminaries

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Removing the Shipping Restraint

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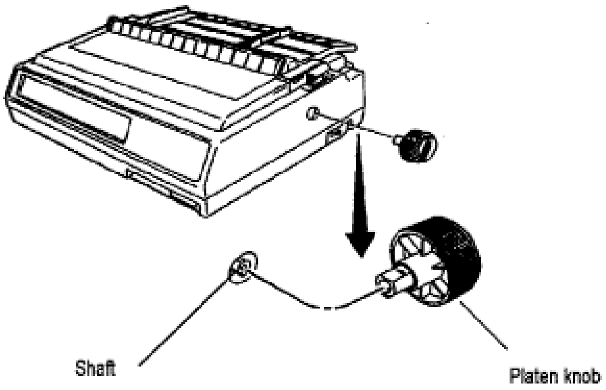


Note: It's a good idea to save the shipping restraint and the packing material in case you ever need to ship the printer.

Installing the Platen Knob

Installing the Platen Knob

You will notice that the shaft on the platen knob has a flat side that matches the flat side of the shaft in the printer. Line up these two flat sides and push the knob into place.

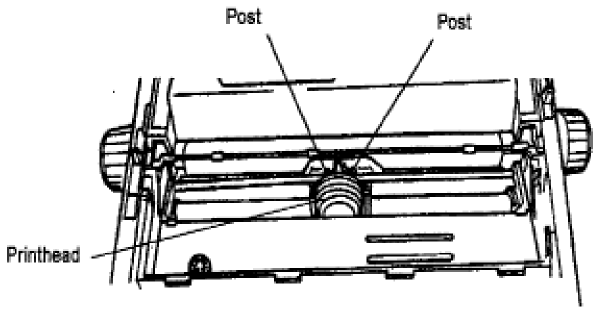


Installing/Replacing the Ribbon

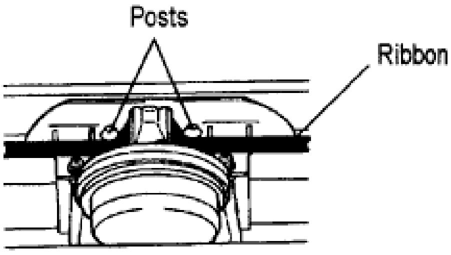
Installing/Replacing the Ribbon

1. Make sure printer is turned off.
2. Holding the posts, move printhead to center of platen.

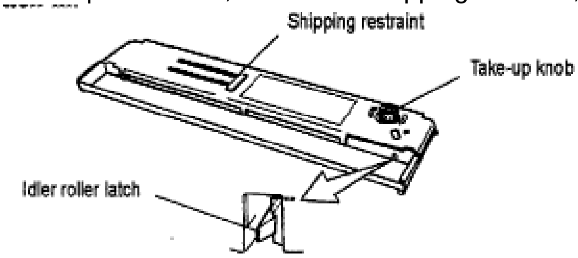
Caution! If you are replacing the ribbon, printhead may be HOT!



3. If you are replacing the ribbon: slide ribbon off printhead posts, remove cartridge from printer, and discard used cartridge.



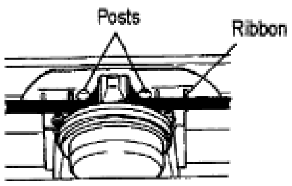
4. Unpack ribbon, remove its shipping restraint, and push idler roller latch in.



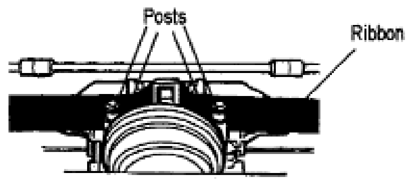
5. Place ribbon cartridge in printer: pins on either end of car-tridge fit in notches in plates on either side of printer platen. Push down on cartridge until it clicks into place (see diagram on cartridge).

Note Turn knob in direction of arrow if cartridge does'nt fit into place easily.

5. Thread ribbon around posts as shown, then turn take-up knob clockwise to eliminate ribbon slack.Making Connections



Black Ribbon



Color Ribbon

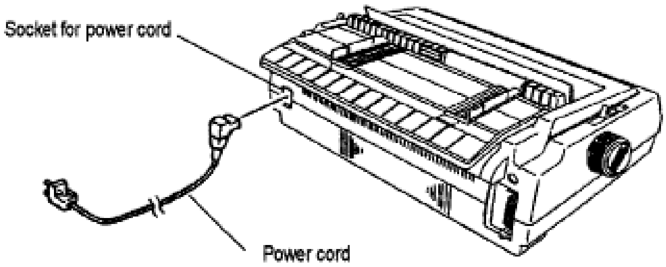
The power cable and the interface cable have to be connected before you can use your printer.

Caution! Before you begin, make sure power switch is OFF.

Power Connection

Power Connection

Plug the power cord into the printer, but do not plug it into an electrical outlet until setup is complete.



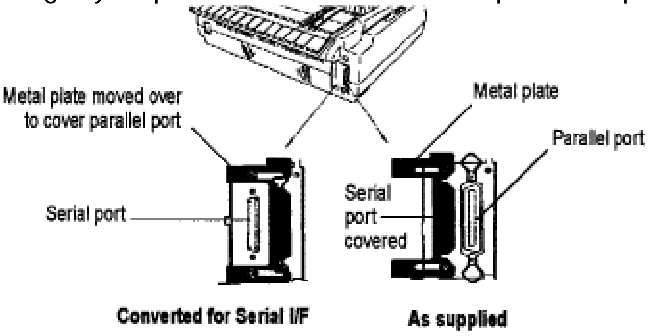
Computer Connection

Computer Connection

Your printer has both a parallel and a serial port: you can only use one at a time. When you take the printer out of the box, there will be a metal plate over the serial port.

Using the Parallel Port

Plug in your parallel cable and fasten the printer's clips to it.



Using the Serial Port

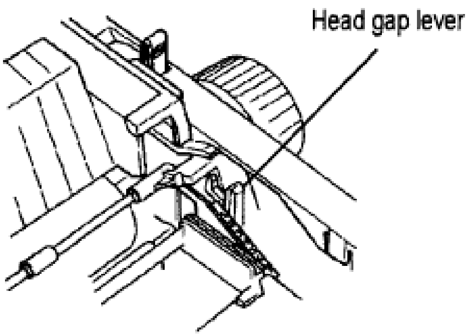
To use the serial interface, loosen the metal plate with a Phillips screwdriver and slide it to the right to cover the parallel port. Plug your cable into the serial port and fasten it in place by screwing it in. Then tighten the screws on the plate.

If you use the serial port, you may need to enter the Menu Select mode and adjust the menu settings (see Chapter 5)( ).

Adjusting the Head Gap

Adjusting the Head Gap

The head gap is the distance between the printhead and the platen. When you use envelopes or multi-part forms, you need a larger head gap than when you use plain paper.



To adjust the head gap, open the access cover. The blue head gap lever is located on the right side of the printer. Use the recommended head gap from the table below to ensure the best print quality and proper paper feeding.

Adjusting the Head Gap	Headgap Setting
12-20 lb paper	1
20-24 lb bond	2
Labels	3-4
Envelopes	5-9

Form (w/carbon)	Headgap Setting
Two-part	3-4
Three-part	4-5
Four-part	7

Chapter 2
Loading Paper

Loading Paper

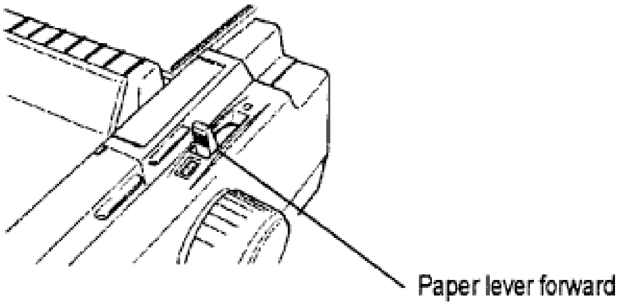
Your printer has two standard paper handling configurations: rear-feed continuous forms and top-feed single sheets. You can also use bottom-feed continuous forms if you install the op-tional push tractor unit and/or the optional pull tractor.

You can also expand top-feed convenience by installing one of the optional cut sheet feeders on top of the printer platen. These cut sheet feeders automatically feed in single pages one after another from a stack of over 100 sheets (see Accessories in Appendix B)( ).

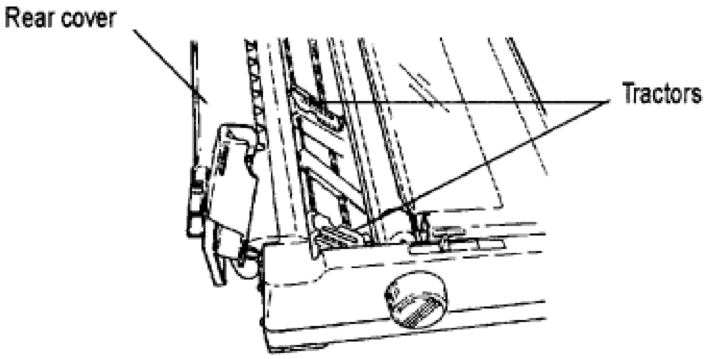
Loading Rear-Feed Continuous Forms

Loading Rear-Feed Continuous Forms

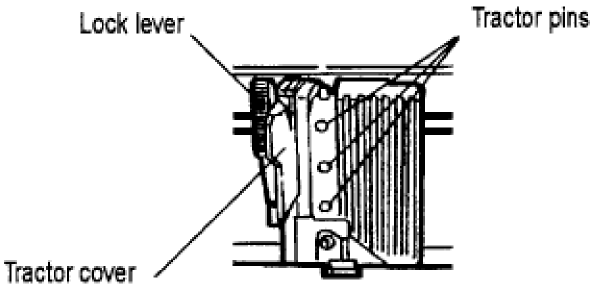
1. Pull paper lever forward to continuous forms position.



2. Open rear cover and locate tractors.

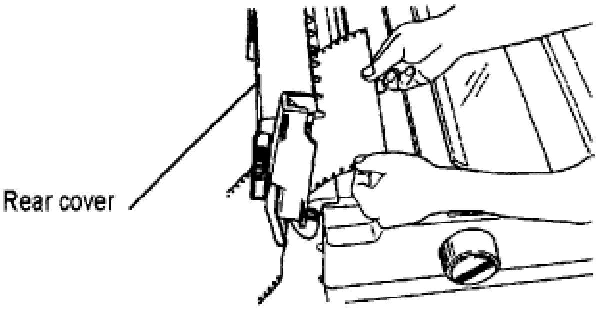


3. Open both tractor covers and pull forward on right-hand lock lever to unlock right tractor.



Left Tractor (shown with cover open)

4. Insert paper under rear cover and pull it through.

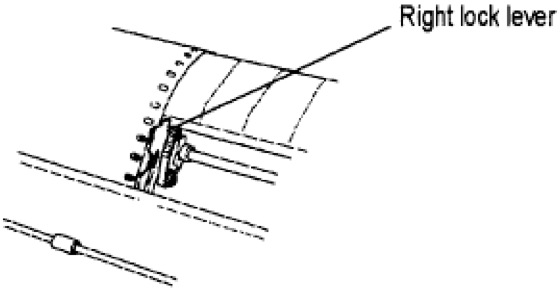


5. Slide right-hand tractor to adjust it to width of paper, then set paper on tractor pins at either end and

close tractor covers.

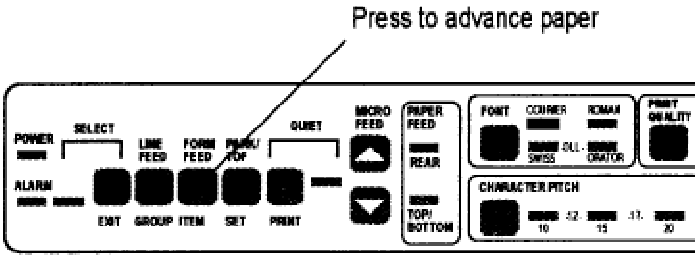


6. Push right lock lever back to lock tractor in position. Don't stretch paper tightly it can cause paper to tear.

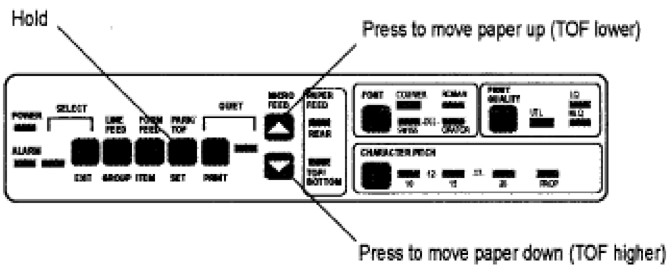


7. Close rear cover.

8. Press FORM FEED button to advance paper.



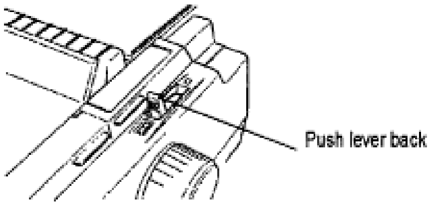
9. Set Top of Form (TOF) by holding PARK button while pressing appropriate MICRO FEED button. Paper will advance up or down in direction of arrow on button youre pressing. (For more details, see Setting Top of Form later in this chapter.)



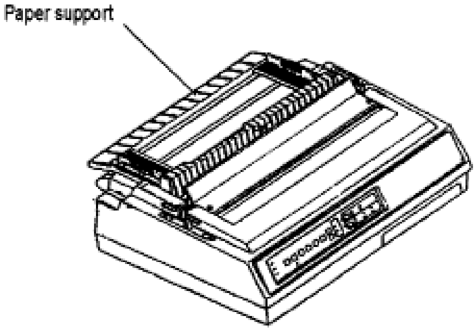
Loading Single-Sheet Paper

Loading Single-Sheet Paper

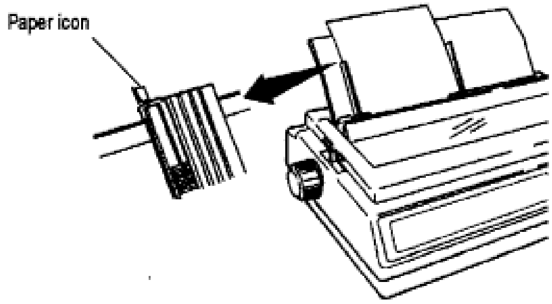
1. Push paper lever back to single-sheet position.



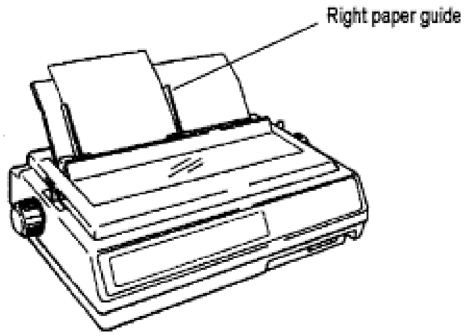
2. Lift paper support to upright position.



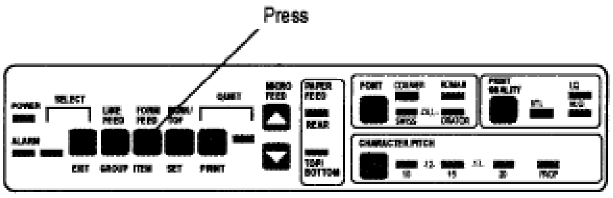
3. Align left paper guide with paper icon on support.



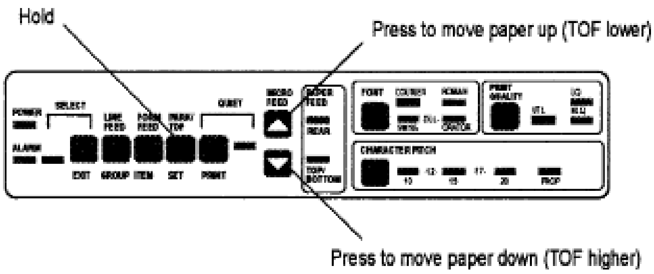
4. Insert a piece of single-sheet paper and adjust right paper guide to width of paper.



5. Press FORM FEED button to feed sheet into printer.



6. Set top of form by holding PARK button while pressing appropriate MICRO FEED button. Paper will advance up or down in direction of arrow on button youre pressing.



Changing Paper Paths

Changing Paper Paths

You don't have to remove continuous-form paper in order to print a single sheet.

To change from continuous forms to single sheets:

1. Remove any printed pages from printer.
2. Press PARK button to retract continuous forms paper from paper path.
3. Move paper lever to single sheet position if you're switching from rear feed.
4. Lift paper support to upright position and align left paper guide with paper icon on support.
5. Insert a piece of single-sheet paper and adjust right paper guide to width of paper.
6. Press FORM FEED button to feed sheet into printer.

To switch back to continuous forms:

To switch back to continuous forms:

1. Remove any single-sheet paper in printer.
2. Move paper lever to continuous forms position if you're switching to rear feedleave it set for single sheets if you're switching to bottom feed.
3. Lower paper support.
4. Press FORM FEED button to feed continuous forms paper into printer.

Setting Top of Form

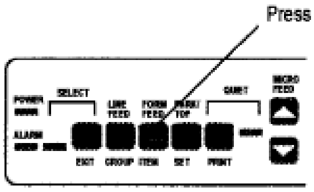
Setting Top of Form

The top of form is the place on the page where printing starts. When the printer advances to the next page, it stops at the top of form.

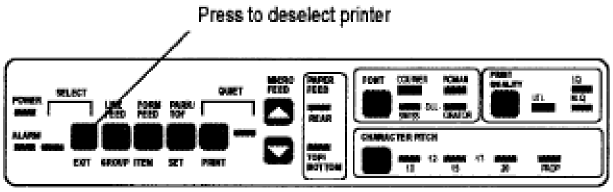
Your printer stores the top of form position independently for the three standard types of paper feeding: top, rear, and bottom.

The method of setting top of form is the same for all types of paper:

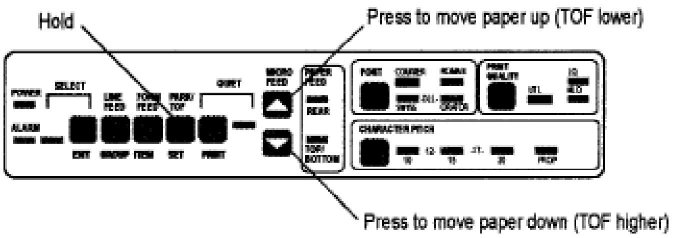
1. Feed a page into printer by pressing FORM FEED button.



2. Make sure printer is deselected (SELECT light off). If it's not, press SELECT/EXIT button to deselect it.



3. Press and hold PARK button while you adjust page up or down using MICRO FEED buttons. Red line on plastic ribbon shield marks base of printing line: use this as a guide.



4. When you release PARK button, position will be registered in printer's memory until you change it.

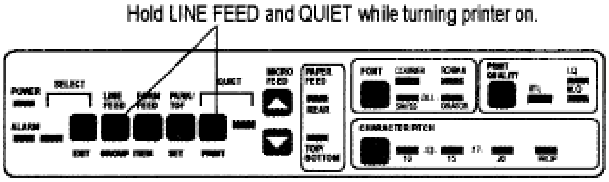
Resetting Top of Form

Resetting Top of Form

To reset the Top of Form to the factory default:

1. Turn off printer.

2. Hold down LINE FEED and QUIET buttons while turning printer back on.



Paper Handling

Paper Handling

Your printer has the following handy paper handling features:

- Form Tear Off
- Paper Park

Form Tear Off Feature (Continuous-Form Paper Only)

Form Tear Off Feature (Continuous-Form Paper Only)

Caution! Do not use Form Tear Off when printing on labels.

The Form Tear-Off feature allows you to remove a printed continuous-form page without wasting paper. It does this by automatically advancing the continuous-form paper to the tear bar position when printing stops.

The printer is shipped with this feature turned off. To activate the feature, you need to enter the Menu Mode (see Chapter 5) and select a setting other than Off for the Form Tear-Off item under General Control. Each setting is explained below.

Settings 300 ms, 2 sec & 4 sec

These settings activate the Form Tear-Off feature so that the print paper automatically advances to the tear bar position shortly after printing stops: the interval between the time the printer stops and the time the paper advances is determined by the setting you select. When data is received again, the continuous-form paper will automatically move back down for printing

Note: When running continuous invoices, select the 300 ms setting. The printer will print the invoices without stopping. If the last invoice does'nt print, add the Form Feed command at the end of the program.

Offline: This setting causes the printer to go offline (deselected) after it moves the paper up to the tear-off position. The paper will then remain in the tear-off position until you place the printer back on line by pressing the SELECT button.

In Point of Sale situations, this setting permits you to tear off each individual receipt before the next receipt is printed.

Settings: **300 ms** (ML393PLUS), **2 sec** (ML393PLUS), & **4 sec** (ML393PLUS)

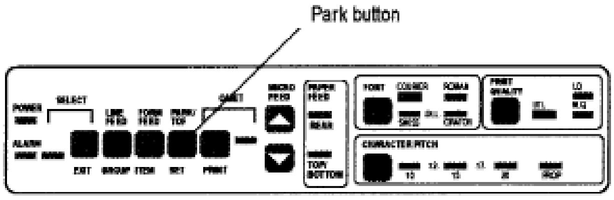
These settings are similar to the 300 ms/2 sec/4 sec settings above, but are specifically for use with programs written for the former MICROLINE 393/393C Plus printer. They provide backward compatibility for those who have replaced their Microline 393/393C Plus printer with the Microline 395/395C.

Note: Some programs, such as high resolution graphics packages, pause occasionally while sending data to the printer. If the pause lasts more than the selected interval, the paper will advance to the tear-off position until more data is received. No data will be lost, but this extra paper movement can cause uneven print registration in graphics. If you have this problem, use the menu to set the Form Tear Off feature to OFF.

Paper Park

Paper Park

If you have continuous-form paper loaded and you wish to switch to another paper path, first tear off the printed pages, then simply press the PARK button. The continuous-form paper will immediately retract from the paper path.



Chapter 3
Font Test & Rolling ASCII Test

Important! Use only continuous forms paper to run tests.

Font Test

Note: The top of the Font Test and Rolling ASCII Test contains information on your printer model. Be sure to have a copy of the printout handy if you call for service.

The Font Test prints samples of the available fonts.

To run the Font Test:

1. Be sure paper is loaded, then turn off printer
2. Hold LINE FEED button while turning printer back on. Note If printer turns on without starting to print, you didnt hold LINE FEED button long enough.

To stop the Font Test:

Press the SELECT button or turn off the printer.

Rolling ASCII Test

The Rolling ASCII Test produces a continuous printout of all 96 ASCII characters in a rolling pattern using the default type style. Heres a sample portion of a Rolling ASCII Test:

To run the Rolling ASCII Test:

1. Be sure paper is loaded, then turn off printer
2. Hold PARK button while turning printer back on.

Note: If printer turns on without starting to print, you did'nt hold PARK button long enough.

To stop the Rolling ASCII Test:

Press the SELECT button or turn off the printer.

Chapter 4
Printer Commands

Printer Commands

Note: If you're using commercial software with an appropriate printer driver (see Printer Drivers below), the printer commands will normally be sent to the printer by your software and you won't need to think about them.

Printer commands are signals sent by your PC to the printer which guide and control its operation. They usually begin with the ESC character and can be sent in decimal, ASCII, or hexadecimal form (see Appendix C for a listing of commands).

Emulations

Emulations

Your printer has three emulations:

Epson LQ (factory default)
IBM Proprinter
IBM AGM

Changing Emulations

Changing Emulations

Your printer is set at the factory for the Epson LQ emulation. To change the emulation, enter the Menu Mode by deselecting the printer (press SELECT button), then pressing the QUIET button.

> **The following line will print:**
>
> Printer Control Emulation Mode Epson LQ

Press the SET button until the emulation you wish to select prints. Then exit the Menu and save your setting by pressing the EXIT button.

Printer Drivers

Printer Drivers

Commercial software packages use printer drivers to control the appearance of printed documents. A printer driver is a list of printer commands which cause the printer to perform various functions at the request of the software When you use your printer with a software package, you must use the software to select a printer driver which is compatible with your printer.

The table on the next page summarizes the various drivers which will work with your printer. They are listed in order by decreasing compatibility as you go down the list: select one from as high up on the list as possible, based on what is available from among the drivers supplied with your software.

If you don't see one from near the top of the list, give the software manufacturer a call to see if they have added any drivers to those supplied when you purchased your software.

Important: Check your software documentation for instructions on how to install a printer driver!

IBM Proprinter Emulation	IBM XL24 AGM Emulation	Epson LQ Emulation
Okidata ML 395/C IBM IBM Proprinter X24e/XL24e IBM Proprinter X24/XL24 IBM Proprinter IBM Graphics Printer	Use this emulation only when you've selected an IBM Proprinter XL24 driver and you need to use Epson LQ high density graphics.	OKIDATA ML 395 Epson Epson LQ 870/1170 Epson LQ 850/2050 Epson LQ 860/2550* Epson LQ 2500 Epson LQ 1500 Epson LQ Epson FX Epson JX Epson LX Epson RX Epson MX

*Use this driver for color printing.

Note: OKIDATA MICROLINE 395/395C drivers are available for Microsoft ® Windows ® 3.0 and 3.1. To obtain the drivers, call the OKILINK ® II BBS at (609) 234-5344 and download them, or mail your request for a driver diskette (#MS-8854 for 3½", or #MS-8855 for 5¼") to OKIDATA, P.O. Box 4618, Trenton, NJ 08650-9850.

Because there are some differences in characteristics such as speed or access to various features, you may wish to experiment with several different drivers.

If you must select a driver that is not listed in the table, be sure to check it thoroughly for print features such as boldface, underline and changes in pitch. Don't be surprised if boldfaced items are printed twice, underlines are misplaced, wide spaces are left between lines or the printer behaves chaotically (turn off the printer if the latter occurs). These are all characteristics of an incompatible driver selection.

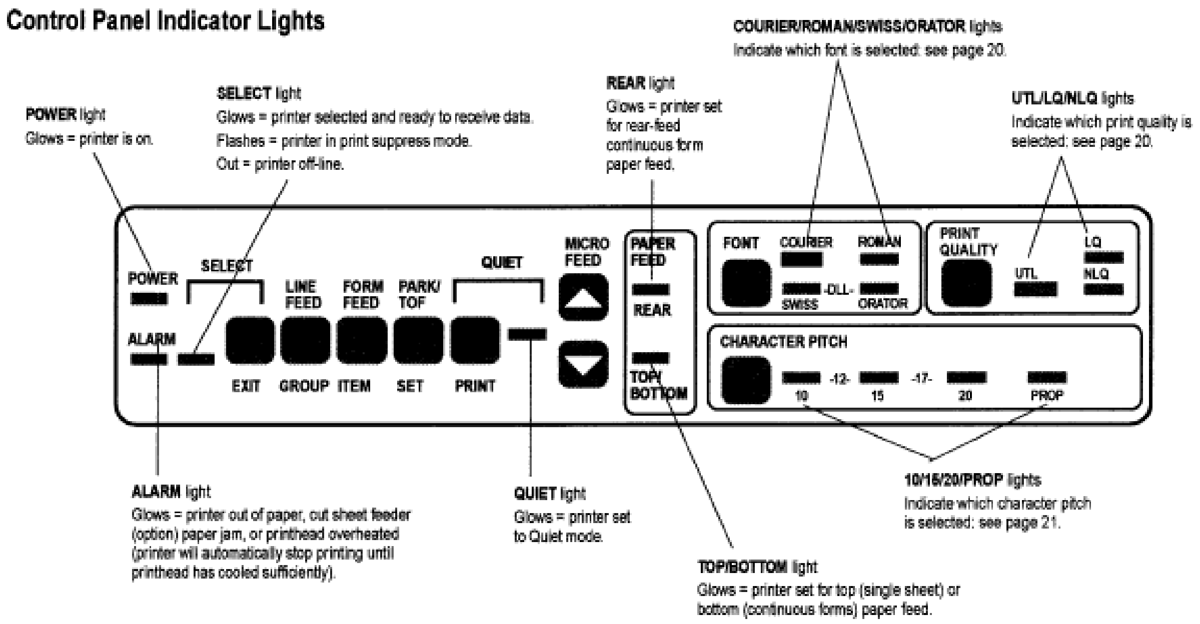
Software Driver Selection

Software Driver Selection

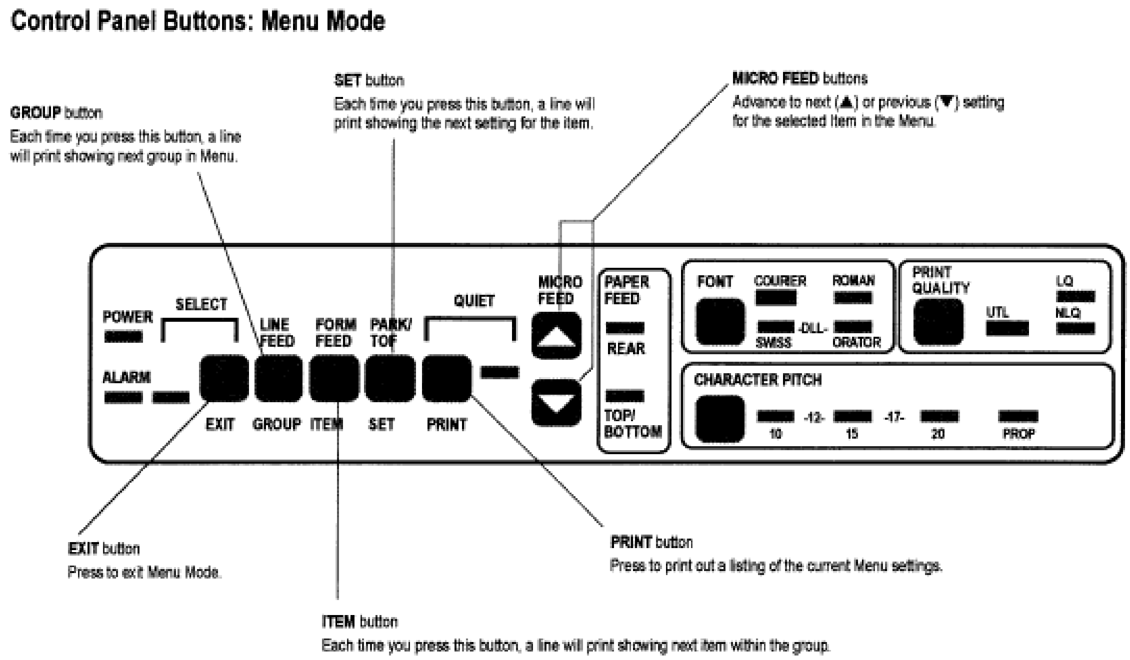
Selecting a software printer driver is usually a part of the program installation process. Changing printers may require use of an external routine, or may be possible from within the program through menu selection.

Chapter 5
Control Panel Indicator Lights

Control Panel Indicator Lights

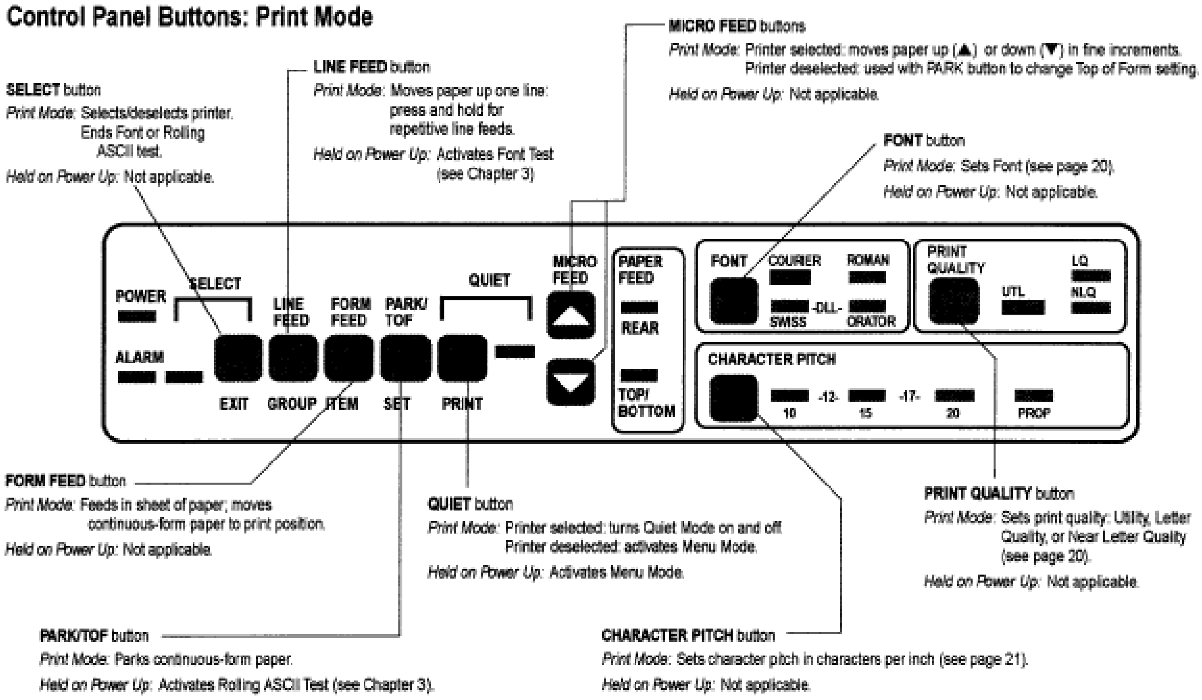


Control Panel Buttons: Menu Mode



Control Panel Buttons: Print Mode

Control Panel Buttons: Print Mode



Combinations of Buttons

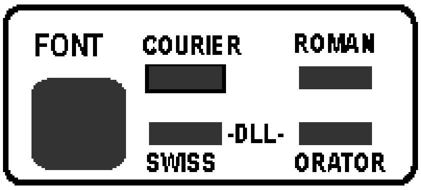
Combinations of Buttons

Several of the front panel buttons can also be used in combination on power up to perform different functions:

Buttons	**Function, held on power up**
SELECT + FORM FEED	Activates Hex Dump Mode.
SELECT + PARK	Resets Menu to defaults.
QUIET + LINE FEED	Resets Top of Form to default.

Print Mode - Selecting a Font

Print Mode - Selecting a Font

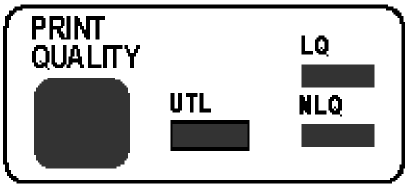


You can select Courier, Roman, Swiss or Orator fonts. You can also downline load fonts you generate using your computer.

To select a font, press the FONT button repeatedly until the light next to the font you wish to select glows. To select DLL, press until both the SWISS and ORATOR lights are glowing.

Selecting Print Quality

Selecting Print Quality



Letter Quality (LQ) printing produces sharp, crisp, clean characters, almost like a typewriter. It is the slowest of the print modes, but it produces the best quality printing. Usable at 10, 12, 15, 17.1, and 20 cpi.

Near Letter Quality (NLQ) printing is faster than LQ printing, and produces characters that are almost as sharp. It is good for documents that dont need that extra polished appearance. Usable at 10 and 12 cpi.

Utility (UTL) printing is designed for printing rough drafts or internal correspondence. It is much faster than LQ or NLQ printing. Usable at 10, 12, 15, 17, and 20 cpi.

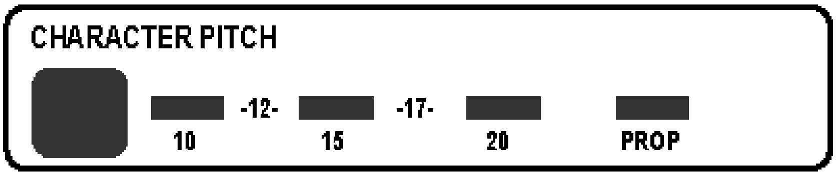
High Speed Draft (HSD) printing is designed for high-volume printing of rough drafts or reports. HSD printing is the fastest. HSD is available at 15 and 17.1 cpi. (To select HSD, you must use the printer Menu see next page)

Note Using HSD or UTL printing whenever possible will help to extend the life of your ribbon.

To select UTL, NLQ or LQ print quality, press the PRINT QUALITY button repeatedly until the light below the print quality you wish to select glows. If you wish to activate HSD, youll need to enter the printer Menu and change the setting for Print Mode under the group Font (see Chapter 5)().

Selecting Character Pitch

Selecting Character Pitch



The character pitch determines the width of the individual characters and is measured in characters per inch (cpi).

To select the character pitch, press the CHARACTER PITCH button repeatedly until the light next to the pitch you wish to use glows. To select 12 cpi, keep pressing until the lights above both 10 and 15 cpi are glowing; to select 17 cpi, press until the lights above both 15 and 20 cpi are glowing.

Menu Mode

Menu Mode

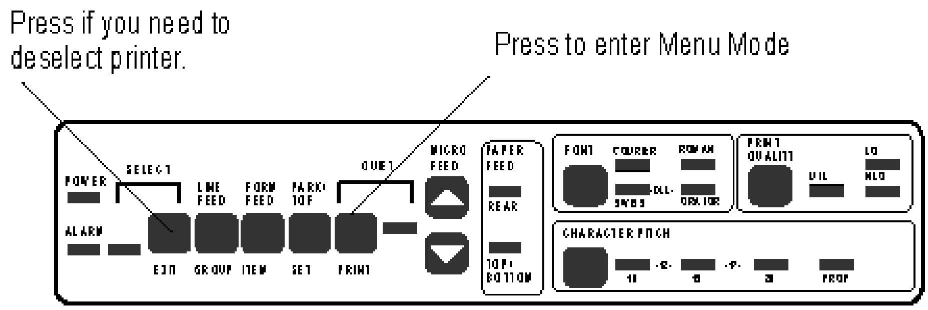
Note When your printer is in the Menu Mode, the functions written below the buttons are active. For example, in the Menu Mode the SELECT button becomes the EXIT button.The Menu Mode allows you to change your printers default configuration. These changes remain even when the printer is turned off until you (or in some cases, your software) change them again.

Important! Certain printing features on the menusuch as font, character size, and line spacingare controlled by most software packages. In that case, the software will override the menu settings.

Entering the Menu Mode

Entering the Menu Mode

To place your printer in the Menu Mode, first make sure the printer is deselected (SELECT light off: press SELECT to deselect printer), then press the QUIET button, or hold down the QUIET button while you turn on the printer.



The following line will print across the page:

Printer Control Emulation Mode Epson LQ

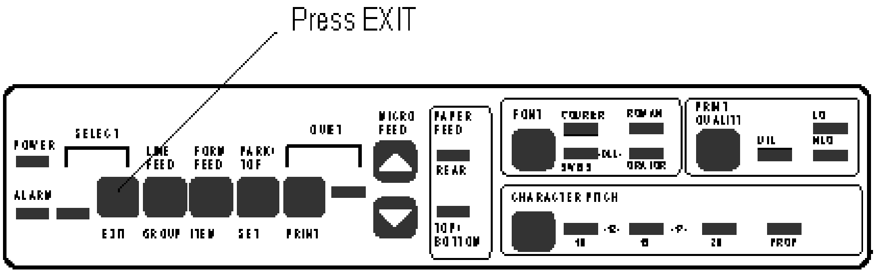
Press to enter Menu Mode

Press if you need to deselect printer.

Exiting the Menu Mode

Exiting the Menu Mode

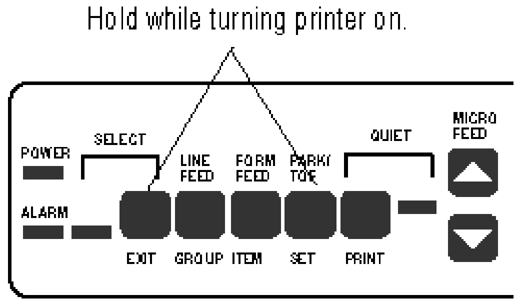
To exit the Menu Mode, press the EXIT button.



Resetting Menu to Factory Defaults

Resetting Menu to Factory Defaults

To reset your printer Menu to the factory defaults, turn the printer off, then hold the SELECT and PARK buttons while turning the printer back on.



Printing the Menu

Printing the Menu

The Menu is made up of groups. Within each group (column 1) are items (column 2); each item has several settings (column 3). To print out a list of the settings currently engaged, enter the Menu Mode, then press the PRINT button. For example:

GROUP	ITEMS	SETTINGS
Printer Control	Emulation Mode	EPSON LQ
Font	Print Mode	LQ
Font	Typestyle	Courier
Font	Pitch	10 CPI
Font	Style	Normal
Font	Size	Single
Font	Smoothing	No
General Control	Graphics	Uni-Directional
General Control	Paper Out Override	No
General Control	Print Registration	0
General Control	Operator Panel Functions	Full Operation
General Control	Ribbon Selection	Black Ribbon
General Control	Reset Inhibit	No
General Control	Page Width	13.6"
General Control	Auto LF	No
General Control	Auto CR (IBM)	No
General Control	Form Tear-Off	Off
General Control	Menu Line	6
Rear Feed	Line Spacing	6 LPI
Rear Feed	Skip Over Perforation	No
Rear Feed	Page Length (Inches)	11"
Bottom Feed	Line Spacing	6 LPI
Bottom Feed	Skip Over Perforation	No
Bottom Feed	Page Length	11"
Cut Sheet	Line Spacing	6 LPI
Cut Sheet	Skip Over Perforation	No
Cut Sheet	Page Length	11
Symbol Sets	Character Set	Set I
Symbol Sets	Code Page	USA
Symbol Sets	Language Set	American
Symbol Sets	Zero Character	Slashed
General Interface	Max Receive Buffer	8K
General Interface	Print Suppress Effective	Yes
General Interface	Auto Feed XT (EPSON)	Valid
General Interface	CPU Compensation	Standard

Changing Menu Settings

Changing Menu Settings

To make changes in the Menu settings, first enter the Menu Mode. When you do this, the first Group/Item/Setting will print out.

To change the setting, press the SET button.
To move to the next group, press the GROUP button.
To change to another item within a group, press the ITEM button.

Summary of Menu Settings

Summary of Menu Settings

The table below shows a summary of the various items which may appear in the Menu. Settings which are engaged at the factory (defaults) are set in bold italic.

Note Entries under the group Serial I/F appear in the menu only if you have the Serial Interface board installed, additional entries will appear in the Menu

Group	Item	Setting
Printer Control	Emulation Mode	**Epson LQ,** IBM PPR, IBM X24 AGM
Font	Print Mode	**LQ,** NLQ, Utility, HSD
	Typestyle	**Courier,** Roman, Swiss, Orator, DLL
	Pitch	**10 cp*i*,** 12 cpi, 15 cpi, 17.1 cpi, 20 cpi, Proportional
	Style	**Normal,** Italics
	Size	**Single,** Double, Triple
	Smoothing	**No,** Yes

Group	Item	Setting
General Control	Graphics	Bi-directional, **uni-directional**
	Paper Out Override	**No,** Yes
	Print Registration	+5, +4, +3, +2, +1, **0, -**1, **-**2, -3 ,-4, **-**5
	Operator Panel Function	**Full Operation,** Limited Operation
	Ribbon Selection*	Black Ribbon, Film Ribbon, Black, Yellow, **Magenta,** Cyan, Violet, Orange, Green
	Ribbon Selection**	**Black Ribbon,** Film Ribbon
	Reset Inhibit	**No,** Yes
	Page Width	**13.6",** 8"
	Auto LF	**No,** Yes
	Auto CR (IBM only)	**No,** Yes
	Form Tear-Off	**Off,** 300 ms, 2 sec, 4 sec, offline, 300 ms (ML393PLUS), 1 sec (ML393PLUS), 2 sec (ML393PLUS)
	Menu Line	**6,** 1
Rear Feed	Line Spacing	**6 LPI,** 8 LPI
	Skip Over Perforation	**No,** Yes
	Page Length	12", **11",** 11-2/3, 14", 17", 3", 3.5", 4", 5.5", 6", 7", 8", 8.5"

* Appears for Color-Ribbon Model 395C Only. ** Appears for Black-Ribbon Model 395 Only.

Group	Item	Setting
Bottom Feed	Line Spacing	**6 LPI,** 8 LPI
	Skip Over Perforation	**No,** Yes
	Page Length	12", **11",** 11-2/3, 14", 17", 3", 3.5", 4", 5.5", 6", 7", 8", 8.5"
Cut Sheet	Line Spacing	**6 LPI,** 8 LPI
	Page Length	12", **11",** 11-2/3, 14", 17", 3", 3.5", 4", 5.5", 6", 7", 8", 8.5"
	Paper Transparency	**Paper,** Transparency
Symbol Sets	Character Set	**Set I,** Set II, Epson
	Code Page	**USA,** Multilingual, Canada French
	Language Set	**American,** French, German, British, Danish I, Swedish, Italian, Spanish I, Japanese, Norwegian, Danish II, Spanish II, Latin American, French Canadian, Dutch, Publisher
	Zero Character	**Slashed,** Unslashed
General Interface	Max. Receive Buffer	1 Line, **8K,** 23K
	Print Suppress Effective	No, **Yes**
	Auto Feed XT	Invalid, **Valid**
	CPU Compensation	**Standard,** Special

Group	Item	Setting
Serial Interface	Parity	**None,** Odd, Even
	Serial Data 7/8 Bits	**8 Bits,** 7 Bits
	Protocol	**Ready/Busy,** X-ON/XOFF
	Busy Line	**SSD-,** SSD+, DTR, RTS
	Baud Rate	19200 BPS, **9600 BPS,** 4800 BPS, 2400 BPS, 1200 BPS, 600 BPS, 300 BPS
	DSR Signal	**Valid,** Invalid
	DTR Signal	**Ready on Power Up,** Ready on Select
	Busy Time	**200 mS,** 1 sec

Explanation of Menu Items

Explanation of Menu Items
These explanations are in alphabetical sequence to make it easier to look them up. Some of the items apply only to a specific emulation, model, or if you are using the Serial Interface, as noted.

Auto LF.
Change to Yes if your printer prints one line over another. Keep this set to No if your software adds a line feed when a carriage return is received at the end of a line or if your printout is consistently double spaced.Auto CR (IBM mode only). Choose Yes to make your printer automatically perform a carriage return when an LF is received at the end of the line.

Auto Feed XT
(Epson mode only). In the Epson emulation, the XT signal on pin 14 of the parallel interface can control auto-matic line feed. Some interface cables are wired in such a way that automatic line feed is always in effect; the Auto Feed XT item eliminates this potential problem. The factory setting allows your system to use pin 14 to control automatic line feed; to cause the printer to ignore this signal, change the setting to Invalid.

Baud Rate (Serial Interface only).
Choose a transmission rate of 19,200 bps, 9600 bps (factory default), 4800 bps, 2400 bps, 1200 bps, 600 bps, or 300 bps.

Busy Line (Serial Interface only).
If Ready/Busy protocol (factory default) is selected, you can choose which line your system monitors for a busy signal: SSD -9V, select SSD-SSD +9V, select SSD+ DTR -9V, select DTR RTS -9V, select RTS

Busy Time (Serial Interface only).
Choose 200 mS (factory default) or 1 sec. Sets the length of the busy signal when the Ready/Busy protocol (factory default) is engaged.

Character Set.
Choose IBM Set I (factory default), IBM Set II, or Epson character set.
Code Page. Choose USA (factory default), Multilingual, or Canada French.

CPU Compensation.
Used to adjust interface timing between your PC and the printer. Do not change this setting unless advised to by an Okidata-Certified Technician.

Diagnostic Test (Serial Interface only).
Select Yes if you want to perform a diagnostic test of the serial interface.

DSR Signal (Serial Interface only).
Used with Ready/Busy protocol to select how your system handles the DSR Signal.DTR Signal (Serial Interface only). Change to •Ready on Select• if the DTR signal is required when the printer is selected; leave as •Ready on Power Up• if DTR signal is required when printer is turned on.

Emulation Mode.
Selects the printer command set you want your printer to use: Epson LQ 1000/1050/2500/2550, IBM XL24 Proprinter, or IBM XL24 Alternate Graphics Mode (AGM).

Form Tear Off.
Off (factory default), 300 ms, 2 sec, 4 sec, offline, 300 ms (ML393PLUS), 1 sec (ML393PLUS), 2 sec ML393PLUS). To engage Form Tear Off, select a time interval for the printer to wait before advancing the paper. Choose one of the ML393PLUS settings to provide backward compatibility with programs written for the Microline 393 Plus printer. Choose offline to cause your printer to go offline after moving the paper

up to the tear bar: you must press the SELECT button to put the printer back on-line before it will move the paper back down.

Graphics.
Bi-directional graphics print faster than uni-directional graphics, but uni-directional graphics have better print registration. Bi-directional graphics printing can be optimized by adjusting the Print Registration setting in the Menu.

Language Set.
American (factory default), French, German, British, Danish **I**, Swedish, **I**talian, Spanish **I**, Japanese, Norwegian, Danish **II**, Spanish **II**, Latin American, French Canadian, Dutch, or Publisher. Replaces certain symbols with special characters used in the respective foreign languages.

Line Spacing. Choose 8 lines per inch for tighter line spacing, to get more lines per page. This item is set separately for each paper path.

Max. Receive Buffer.
Choose 1 line, 8K (factory default), or 23K. Selects the amount of memory devoted to holding re-ceived data. Choosing 1 line will tie up your computer during printing, but if you abort the print job the printer will stop printing much sooner.

Menu Line.
Sets number of lines skipped down after each line prints when you are making changes in the Menu. Switch to 1 if you want to conserve paper when making changes in the Menu.

Operator Panel Function.
Change to Limited Operation to deactivate the FONT, PRINT QUALITY and CHARACTER PITCH buttons on the control panel so that you can control these features only through your software. This can be useful when several people are using the printer and you dont want its settings changed.
Note This feature also prevents access to the Menu. To access the Menu, turn the printer off, then hold down the QUIET key while turning on the printer.

Page Length.
12", 11" (factory default), 11-2/3, 14", 17", 3", 3.5", 4", 5.5", 6", 7", 8", 8.5". Set separately for each paper path.

Page Width.
Choose a page width of 13.6" (factory default) or 8".Paper Out Override. The paper out detector senses when less than an inch of paper remains in the printer and stops printing at that point. Changing this setting to Yes overrides the detector so you can print closer to the bottom of the page if youre using single sheets. Be careful if you use this feature: it lets the printer continue printing when theres no more paper, which can cause loss of data and can damage the printhead.

Paper/Transparency.
Choose Paper (factory default) or Transparency as your print medium for Cut Sheet feed.

Parity (Serial Interface only).
None (factory default), Odd, or Even. Selects the type of parity your system uses.

Pitch.
10 cpi (factory default), 12 cpi, 15 cpi, 17.1 cpi, 20 cpi, or Proportional. Selects the character width measured in characters per inch (cpi).

Print Mode.
Change to NLQ for slightly faster near-letter-quality printing; Utility for higher-speed printing with reduced quality; HSD (High Speed Draft) for the fastest, but lowest quality printing.
Print Registration. Change the setting as required to obtain the best registration for bi-directional printing.

Print Suppress Effective.
Enables/disables print suppress command. The factory default enables the print suppress command: the printer will ignore all data it receives after it accepts the print suppress command. Change to No to cause your printer to ignore the print suppress command.

Protocol (Serial Interface only).
Selects the type of protocol your system uses: Ready/Busy (factory default) or X-On/X-Off.

Reset Inhibit.
Change to Yes if you want your printer to ignore the reset command sent by software. This will prevent your software reset command from changing the settings you have made through the front panel controls or through printer com-mands. If you engage this feature, don't forget that it will also prevent your software from clearing out existing settings when you finish printing one document and switch to another.

Ribbon Selection.
The selections for this item depend on which model you have. For Model 395 (black ribbon), the selections include Black Ribbon (factory default) or Film Ribbon. For Model 395C (color ribbon), the selections include Black Ribbon, Film Ribbon, Black, Yellow, Magenta (factory default), Cyan, Violet, Orange, or Green. If you have the black ribbon installed, choose Black Ribbon or Film Ribbon, as appropriate.

Serial Data 7/8 Bits (Serial Interface only).
Change to 7 bits if your system uses a 7-bit data format.

Size.
Choose Single (factory default), Double, or Triple width and height printing.

Skip Over Perforation.
Change to Yes if you want the printer to advance automatically to the next page when it comes within one inch of the bottom of the page. If your software has its own page formatting controls, keep this item set to No to avoid interference. This item is set separately for the rear and bottom-feed paths.Smoothing.
Change to Yes to set the printer to smooth the edges of bit-mapped graphics.

Style.
Choose Normal (factory default) or Italics.

Typeface.
Choose Courier (factory default), Roman, Swiss, Orator, or DLL (down line loaded).

Zero Character.
The factory default will cause a slash to appear in zeros to distinguish them from the capital letter O. To disengage the slashed zero, change this to Unslashed.

Chapter 6
Problem Solving

Problem Solving
Here are some of the most common printer problems and how to solve them. If youre still having difficulties, see Appendix B, where you will find information on how to get help from your dealer or from OKIDATA, and how to get your printer serviced.

What if ... ... nothing happens when I turn on the printer?

The printer may not be plugged in. Check the power cord connection to the outlet and to your printer. If youre using a power strip, make sure its turned on. Check to be sure that the fuse hasnt blown or that the circuit breaker hasnt tripped.

... the printer doesnt print when the computer sends data?

The printer may be deselected. If the SELECT light is out, press the SELECT button to select the printer. The printer cable may not be securely connected. Check the cable to be sure that it is properly connected to both the PC and the printer

.... Im getting strange symbols, incorrect fonts, etc., when I try to print a document?

The printer driver you have engaged does not agree with the emulation selected for your printer, or you have embedded incorrect printer commands within your software.
To check the emulation selected, first make sure paper is loaded, then with the printer deselected (press the SELECT button to deselect the printer if necessary), press the QUIET button to enter the Menu Mode. This will print a line indicating the emulation selected.
If the emulation is not the one you want to use, press the SET button to change it, then press the SELECT button to exit the Menu Mode.
If the emulation is correct, check your software documentation on how to select a printer driver, then check to be sure that you have selected one of the drivers listed for that emulation on page 16. The closer the driver is to the top of the list, the more compatible it will be with your printer. If your software doesnt have any of the indicated drivers available, check with the software manufacturer to see if they have added any additional drivers since you purchased your software.
If you have embedded any printer commands in your software, check to be sure that you entered them correctly.

What if ...
... my word processor files dont print the way I have the menu and front panel set?

Before sending a file to the printer, many word processors send an initialization string to the printer. The initialization string contains codes that reset the printer to a default set of features: otherwise the printer might accidentally print using features set for a previous job. These codes will override panel or menu settings. To set your printer to ignore the reset code, enter the printer Menu (deselect printer, then press QUIET button) and change the Reset Inhibit item (under General Control) to Yes. Please note that while this will stop the reset code from reset-ting your printer, other codes in the initialization string may still override the printer Menu and/or front panel settings.

... the Font, Print Quality and Character Pitch buttons on the front panel wont work?
The Operator Panel Function item on the printer menu can be used to disable these buttons. If the printer is part of a custom-ized system or if it is used by a number of people, the system manager may have used this option to make sure the printer is always set properly.... static electricity causes the paper to stick?

In cold, dry weather, static charges can build up on continuous-form paper. This can make the paper cling to the rear cover. If you have this problem during high-volume printing jobs, try moving the single sheet paper guides on the cover together so that the paper rests on the guides rather than on the cover itself.

Maintenance - Replacing The Ribbon Cartridge

Maintenance - Replacing The Ribbon Cartridge

When replacing the ribbon, be sure to use only ribbons specifically for use with 393 series and 395/395C printers.

For best results, use genuine OKIDATA ribbons:

Black ribbon: Part No.	52103601
Black film ribbon: Part No.	52103801
Color ribbon: Part No.	52103701

To replace the ribbon cartridge, see Installing/Replacing the Ribbon on page 2( ).

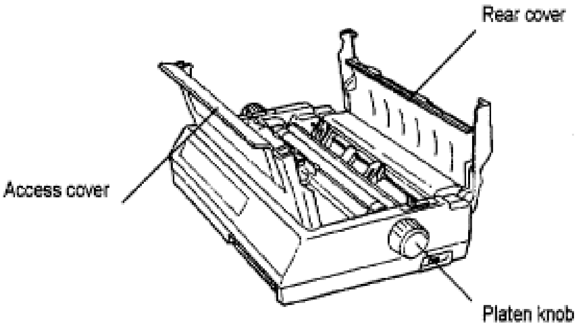
Clearing Paper Jams

Clearing Paper Jams

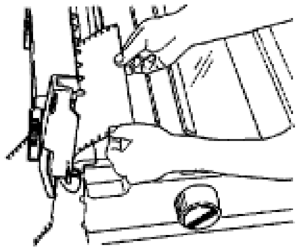
Important: Always turn printer off before you turn platen knob!

Rear Feed Jams To clear a rear-feed paper jam:

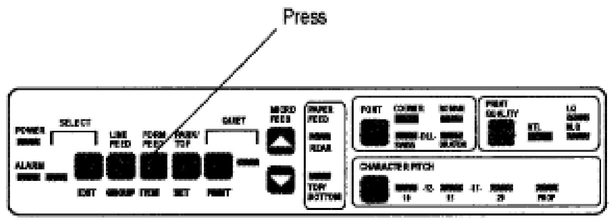
1. Turn off printer.
2. Back paper out of printer carefully using platen knob.
3. Open access cover and rear cover and remove any torn pieces of paper.



4. Reload paper, close covers and turn printer back on.



5. Press FORM FEED button.



Repeated Rear-Feed Jams

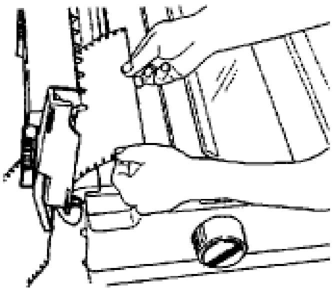
Repeated Rear-Feed Jams

If your rear-feed paper keeps jamming, chances are you have bits of paper stuck in the paper path. To eliminate this problem:

1. Turn off printer.

2. Use platen knob to back paper out of printer.

3. Lift up rear cover, open tractors and remove paper.



4. Fold some single-sheet, continuous-feed paper over three times to produce a page four sheets thick.

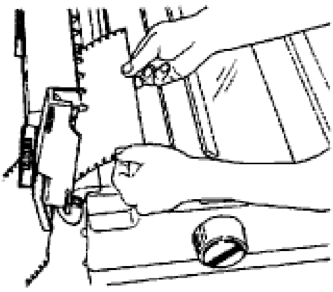
5. Load this quadruple-thick sheet onto tractor pins and close tractor covers.



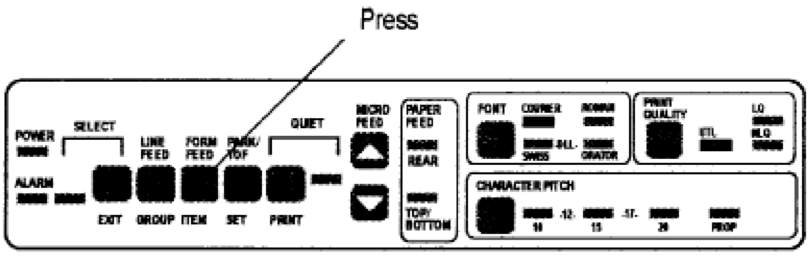
6. Turn platen knob to draw quadruple-thick paper around platen. This will bring jammed pieces of paper up and out so you can dispose of them.

7. Back quadruple-thick sheet out of printer using platen knob.

8. Reload regular paper.



9. Close rear cover, turn printer on and press FORM FEED button to load in paper.


Press
POWER
SELECT
ALARM
LINE FEED
FORM FEED
PARK/TOF
QUIET
MICRO FEED
PAPER FEED
REAR
TOP/BOTTOM
FONT
CHARACTER PITCH
PRINT QUALITY
LQ
NLQ
EXIT
GROUP
ITEM
SET
PRINT

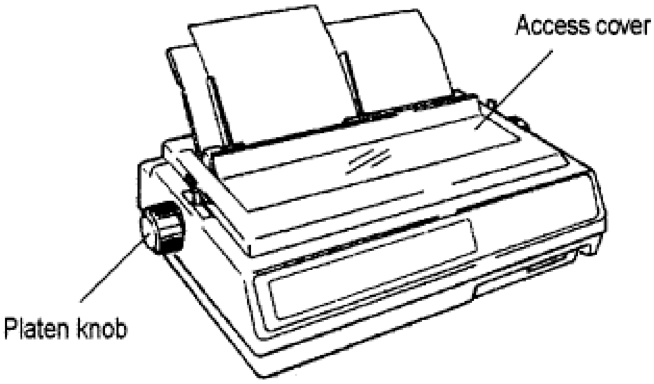
Single Sheet Feed Jams

Single Sheet Feed Jams

To remove jammed single sheets of paper (top feed):

1. Turn off printer.

2. Use platen knob to back paper out of printer.



3. If necessary, open access cover and remove any torn pieces from around carriage.

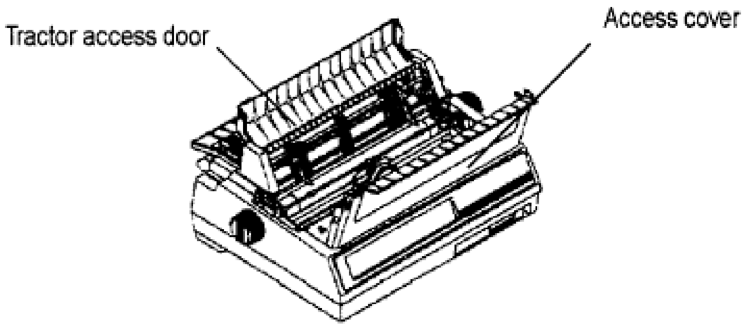
Bottom Feed Jams

Bottom Feed Jams

If bottom-feed paper jams:

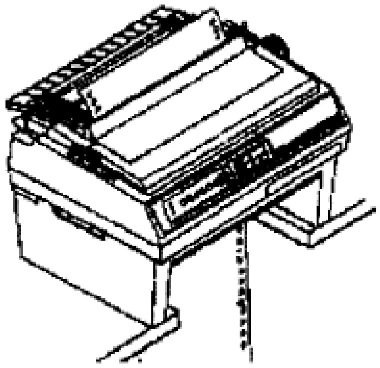
1. Turn off printer.

2. Use platen knob to back paper out of printer.



3. If you have bottom-feed push tractor unit installed, open the printer access cover and the tractor access door and remove any shreds of paper jammed in tractor mechanism.

4. Reload paper.



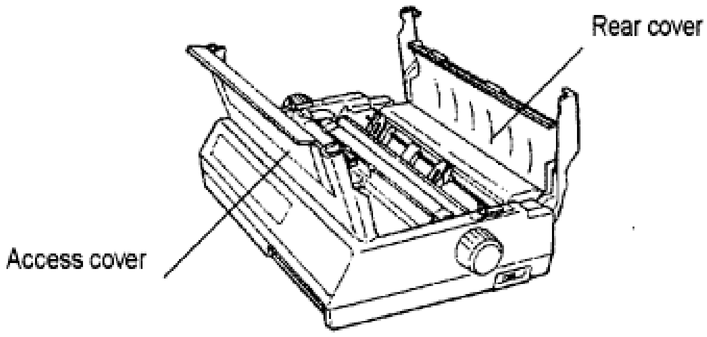
Cleaning the Housing

Cleaning the Housing

You should clean the printer every six months (or after about 300 hours of operation).

To do this:

1. Turn off printer and remove paper from paper path.
2. Open access cover and rear cover.



3. Use clean, dry cloth to dust area around carriage shaft and platen. Be sure to remove any loose particles of paper.
4. Close covers.

Caution! Never use solvents or strong detergents on the cabinet. They could damage the housing.

Specifications

Print Method: Impact dot matrix

Printhead: 24 pins, 0.20 mm diameter, with thermal protection

Print Speed

Mode	Pitch	Speed, Head Gap 1 or 2	Speed, Head Gap 3 or more
LQ	10 cpi*	135 cps*	117 cps
	12 cpi	162 cps	140 cps
	15 cpi	202 cps	175 cps
	17.1 cpi	231 cps	200 cps
	20 cpi	270 cps	234 cps
NLQ	10 cpi	202 cps	175 cps
	12 cpi	243 cps	211 cps
Utility	10 cpi	405 cps	352 cps
	12 cpi	486 cps	422 cps
	15 cpi	303 cps	263 cps
	17.1 cpi	347 cps	300 cps
	20 cpi	405 cps	352 cps
HSD	15 cpi	607 cps	528 cps
	18 cpi	607 cps	528 cps

*cpi = characters per inch *cps = characters per second Characters per Line (Cpl)

Pitch Characters per line

Pitch	Characters per line
10 cpi*	136 cpl
12 cpi	163 cpl
15 cpi	204 cpl
17.1 cpi	233 cpl
20 cpi	272 cpl

Resident Fonts
LQ and NLQ: Courier: 10/12/15/17.1/20 cpi, proportional & superscript/subscript
Roman: 10 cpi, proportional & superscript/subscript
Swiss: 10 cpi, proportional, superscript/subscript & double/triple width/height
Swiss 18 point: outline & shadow
Orator: 10/12 cpi & superscript/subscript
Utility: Gothic: 10/12/15/17.1/20 cpi
HSD: Gothic: 15 cpi
Bar Code: Code 39, UPC A, UPC E, EAN 8, EAN 13, Interleaved 2 of 5, Code 128, Postnet

Emulations: Epson LQ, IBM Proprinter, IBM XL24 AGM

Interface
Centronics parallel, RS-232C serial

Graphics Resolution: 360 x 360 dots per inch maximum

Buffer Size: 23K print buffer, 64K total

Reliability

Mean Time Between 8000 hours at 25% duty cycle, Failures (MTBF) 35% page density

Mean Time to Repair 15 minutes (MTTR)

Printhead life 200 million characters average in 10 cpi utility mode

Ribbon Life
Black Ribbon: 5 million characters (on average,
Color Ribbon: (10 cpi utility)
black = 2.1 million characters
cyan = 1.8 million characters
magenta = 1.8 million characters
yellow = 1.3 million characters
Film Ribbon: 400,000 characters

Dimensions 22.4" W x 16.4" D x 7.1" H (570 x 417 x 180 mm)

Weight 37 lbs. (16.8 kg)
Environmental Requirements
Operating Temperature: 41 to 104°F (5 to 40°C)
Storage Temperature: 14 to 122°F (-10 to +70°C)
Operating Humidity: 20 to 80% RH
Storage Humidity: 5 to 95% RH
Electrical requirements 120 volts ac (+10%, -15%), 50/60 Hz (+/-2%)
Also available for 230/240 volts ac• (+10%, -15%), 50/60 Hz (+/-2%)

Paper Specifications
Minimum Width: 3"
Maximum Width: 16"
Weight: 16 to 24 lb
Thickness: 0.014" (0.36 mm)

Paper type

Paper type	**Feed**	**Weight**	**Width range**
Cut sheets	Top only	14 to 24 lb	7.2" to 14.3"
Single-part continuous forms	Rear, Bottom	12 to 24 lb	3" to 16"
Carbonless, multi-part continuous forms (original + 3 copies)	Rear, Bottom	9 to 11 lb	3" to 16"
Interleaf, multi-part continuous forms (original + 3 copies)	Rear, Bottom	10 to 12-lb paper; 9-lb carbon	3" to 16"
Labels	Bottom only	N.A.*	3" to 16"
Envelopes, single feed	Top	24 lb max.	6.5" to 9.5"
Envelopes, continuous feed, non-overlap type	Rear, Bottom	24 lb max.	6.5" to 9.5"
Card stock	Bottom only	100 lb max.	7.2" to 14.3"
Transparencies	Top only	N.A.*	8.5" x 11"

Appendix C
Printer Commands

Note Normally the commands in this table override Menu settings. Except as noted, these commands are cancelled and the printer returns to the factory and Menu settings when the printer receives an Initialization, Software I-Prime, or Change Emulation command, or when it is turned off.

Epson LQ Commands

Note Normally the commands in this table override Menu settings. Except as noted, these commands are cancelled and the printer returns to the factory and Menu settings when the printer receives an Initialization, Software I-Prime, or Change Emulation command, or when it is turned off.

Epson LQ Commands

This section contains the commands for the Epson LQ emulation, grouped by function.

Epson Function	Command	Notes
Horizontal Control		
Carriage Return	ASCII: CR Dec: 13 Hex: 0D	Prints data in print buffer and performs carriage return.
Set Horizontal Tabs	ASCII: ESC D n_1 n_2 ... n_k NUL Dec: 27 68 n_1 n_2 ... n_k 0 Hex: 1B 44 n_1 n2 ... n_k 00	Sets horizontal tab stop positions. n = position of tab stop--maximum one less than # of characters per line k = 1 to 32 n_1 = 0: clear tabs Default: every 8 columns Once tabs are set, they remain the same even if character pitch is changed.
Set relative tab stops	ASCII: ESC e n m Dec: 27 101 n m Hex: 1B 65 n m	n = 0: Horizontal tabs n = 1: Vertical tabs m = 0 to 127
Execute relative tab	ASCII: ESC f n m Dec: 27 102 n m Hex: 1B 66 n m	n = 0: Horizontal tabs n = 1: Vertical tabs m = 0 to 127
Horizontal Tab	ASCII: HT Dec: 9 Hex: 09	Move to next horizontal tab stop
Absolute Horizontal Position	ASCII: ESC $ n_1 n_2 Dec: 27 36 n_1 n_2 Hex: 1B 24 n_1 n_2	Move to new horizontal position. Amount of movement from left margin is calculated as follows: [n_1 + (n_2 x 256)] / 60 inches n_1 = 0 to 255 n_2 = 0 to 255 n_1 = n_2 = 0: left margin Max. value: n_1 = 48, n_2 = 3 (13.6" shift) Space moved using this command will not be underlined. DEL command will not delete the skipped amount.
Relative Horizontal Position	ASCII: ESC \ n_1 n_2 Dec: 27 92 n_1 n_2 Hex: 1B 5C n_1 n_2	Move to new horizontal position, relative to present position. Amount of movement is calculated as follows: (n_1 + [n_2 x 256]) / 120 dpi n_1 = 0 to 255 n_2 = 0 to 255 n_1 = n_2 = 0: no movement + moves to right; - moves to left

Set Print Position	ASCII: ESC DLE @ P_n A A_2 P_1 P_2 P_3 P_4 Dec: 27 16 64 [data] Hex: 1B 10 40 [data]	OKI unique command. Sets next horizontal position of printhead. P_n = number of parameter bytes to follow, range 0 to 255 A_1 specifies whether motion is absolute or relative: even = absolute from left margin; odd = relative from present position A_2 specifies direction of relative movement: even = toward right margin (forward); odd = toward left margin (reverse) $P_1P_2P_3P_4$ = 4-digit number representing number of units to move (size of unit depends on character pitch)
Left Margin Set	ASCII: ESC l n Dec: 27 108 n Hex: 1B 6C n	Sets left margin n character spaces from printhead home position; must be at least 2 spaces to left of right margin. n = 0 to 255 n = 0: home position
Right Margin Set	ASCII: ESC Q n Dec: 27 81 n Hex: 1B 51 n	Sets right margin n character spaces from printhead home position; must be greater than the left margin. n = 1 to 255 n = 0: command ignored
Auto Justification	ASCII: ESC a n Dec: 27 97 n Hex: 1B 61 n	Justifies text according to the value of n: n = 0: Left n = 1: Center n = 2: Right n = 3: Full (left & right)--use carriage return only at end of paragraph.
Repeat Printing	ASCII: ESC V n Dec: 27 86 n Hex: 1B 56 n	n = 1 to 255: Reprint data n times n = 0: End repeat printing
Unidirectional Print On/Off	ASCII: ESC U n Dec: 27 85 n Hex: 1B 55 n	Turns unidirectional (left to right only) printing on and off. n = 1: Unidirectional printing On n = 0: Unidirectional printing Off (normal bidirectional printing)
One-Line Unidirectional Printing	ASCII: ESC < Dec: 27 60 Hex: 1B 3C	Turns on unidirectional (left to right) printing for one line.
Backspace	ASCII: BS Dec: 8 Hex: 08	Prints data in print buffer and moves one character to the left according to the current character pitch.
Delete One Character	ASCII: DEL Dec: 127 Hex: 7F	Deletes last character in print buffer.
Vertical Control		
Set 1/6" Line Spacing	ASCII: ESC 2 Dec: 27 50 Hex: 1B 32	Sets line spacing of 1/6" (6 lines per inch). This is standard typewriter spacing.
Set 1/8" Line Spacing	ASCII: ESC 0 Dec: 27 48 Hex: 1B 30	Sets line spacing of 1/8" (8 lines per inch).

Set n/60" Line Spacing	ASCII: ESC A n Dec: 27 65 n Hex: 1B 41 n	Sets line spacing of n/60". n = 0 to 255 n = 0: no line feed.
Set n/180" Line Spacing	ASCII: ESC 3 n Dec: 27 51 n Hex: 1B 33 n	Sets a line spacing of n/180". n = 0 to 255 n = 0: no line feed
Set n/360" Line Spacing	ASCII: ESC + n or ESC [n Dec: 27 43 n or 27 93 n Hex: 1B 2B n or 1B 5B n	Sets line spacing of n/360". ESC [n is OKI unique command n = 0 to 255 n = 0: no line feed
Line Feed	ASCII: LF Dec: 10 Hex: 0A	Prints buffer data and moves the printhead by the current line spacing value. Cancels SO and ESC SO commands.
n/180" Line Feed	ASCII: ESC J n Dec: 27 74 n Hex: 1B 4A n	Executes one n/180" line feed without changing line spacing. n = 0 to 255 n = 0: no line feed, but initiates printing
n/180" Reverse Line Feed	ASCII: ESC j n Dec: 27 106 n Hex: 1B 6A n	Executes one n/180" reverse line feed without changing line spacing. n = 0 to 255 n = 0: no line feed, but initiates printing
n/360" Line Feed	ASCII: ESC] n Dec: 27 93 n Hex: 1B 5D n	OKI unique command. Executes n/360" line feed without changing line spacing. n = 0 to 255 n = 0: no line feed, but initiates printing
Form Feed	ASCII: FF Dec: 12 Hex: 0C	Prints data in buffer and advances paper to next top of form. Cancels SO and ESC SO command. With Cut Sheet Feeder, inserts or ejects paper depending on status of paper when command is issued.
Vertical Tab	ASCII: VT Dec: 11 Hex: 0B	Print buffer data and move to next vertical tab stop.
Set Vertical Tab Stops	ASCII: ESC B n_1 n_2 ... n_k NUL Dec: 27 66 n_1 n_2 ... n_k 0 Hex: 1B 42 n_1 n_2 ... n_k 00	Sets vertical tab stops at specified lines relative to Top of Form position. k = 1 to 16: number of tabs n = 1 to 255: line number where tab is to be set n = 0: clears tab setting for Vertical Format Unit channel 0
Set Vertical Format Unit (VFU)	ASCII: ESC b m n_1 n_2 ... n_k NUL Dec: 27 96 m n_1 n_2 ... n_k 0 Hex: 1B 62 m n_1 n_2 ... n_k 00	Programs up to 8 separate sets (channels) of vertical tab stops. m = 0 to 7: channel number (0 is default set by ESC B command) k = 1 to 16: number of tab stops in channel n = 1 to 255: number of lines down from Top of Form position n = 0: clear tab settings for channel m
Select Vertical Tab Channel	ASCII: ESC / n Dec: 27 47 n Hex: 1B 2F n	Activates preprogrammed vertical tab channel n. VT moves to stops in this channel. n = 0 to 7: channel number (0 is default)

Set Page Length in Lines	ASCII: ESC C n Dec: 27 67 n Hex: 1B 43 n	Sets page length in lines. Current position becomes top of form. Printer calculates page length by multiplying current line feed pitch by value entered for ``n." n = 1 to127. Cancels Skip over Perforation setting. Page length set by this command will not change even if line spacing is changed.
Set Page Length in Inches	ASCII: ESC C NUL n Dec: 27 67 0 n Hex: 1B 43 00 n	Sets page length in"es. Current position becomes top of form. n = 1 to 22. Cancels Skip over Perforation setting.
Set Skip Over Perforation area (bottom margin)	ASCII: ESC N n Dec: 27 78 n Hex: 1B 4E n	Activates Skip Over Perforation feature and sets it for n lines at the current line spacing. When Perforation Skip area is entered, printer will automatically feed paper down to top of form on next page. Once this command is entered, the Skip Over Perforation setting will remain the same even if line spacing is changed. n = 1 to 255
Cancel Skip Over Perforation	ASCII: ESC O Dec: 27 79 Hex: 1B 4F	Deactivates Skip Over Perforation. Command overrides menu.
Cut Sheet Feeder Option		
Cut Sheet Feeder Control	ASCII: ESC EM n Dec: 27 25 n Hex: 1B 19 n	Controls Cut Sheet Feeder accessory. n = 1: Select bin 1 n = 2: Select bin 2 (if present) n = 73 (ASCII ``I"): Insert sheet n = 82 (ASCII ``R"): Eject sheet
Character Sets		
Download Custom Characters	ASCII: ESC & m n_1 n_2 d_0 d_1 d_2 [data] Dec: 27 38 109 n_1 n_2 d_0 d_1 d_2 [data] Hex: 1B 26 6D n_1 n_2 d_0 d_1 d_2 [data]	n_1 = 0 to 127 n_2 = 0 to 127 n_1 n_2, range of characters to be replaced d_0 = 0 to 255: clearance before character d_1 = 0 to 37: number of columns character occupies d_2 = 0 to 255: clearance after character
Copy ROM Character Set to RAM Character Set	ASCII: ESC : NUL m n Dec: 27 58 0 m n Hex: 1B 3A 00 m n	Copies ROM characters 32 to 127 to RAM 32 to 127 m = 0: Roman m = 1: Swiss m = 2: Courier m = 3: Prestige m = 7: Orator m = 122: Swiss Bold m = 124: Gothic m = 126: Menu setting n = 0
Select DLL Block	ASCII: ESC v n Dec: 27 118 n Hex: 1B 76 n	n = 1: Block 1 n = 2: Block 2 n = 0: command ignored

Custom Character Set On/Off	ASCII: ESC % n Dec: 27 37 n Hex: 1B 25 n	Engages/disengages custom character set. n = 0: Select default character set n = 1: Select custom character set
Select International Character Set (Set Code Page)	ASCII: ESC R n Dec: 27 82 n Hex: 1B 52 n	Select character set containing 15 special characters used in foreign language printing: n = 0: American n = 8: Japanese n = 1: French n = 9: Norwegian n = 2: German n = 10: Danish n = 3: British n = 11: Spanish II n = 4: Danish I n = 12: Latin American n = 5: Swedish n = 13: French Canadian n = 6: Italian n = 14: Dutch n = 7: Spanish I n = 15: Publisher
Select Epson Character Set	ASCII: ESC t n Dec: 27 116 n Hex: 1B 74 n	Selects Epson character set according to value of n: n = 0: Selects Epson italic character set n = 1: Selects Epson graphic character set n = 2: Re-allocates custom character set
Permit Printing of Upper Range Control Codes	ASCII: ESC 6 Dec: 27 54 Hex: 1B 36	Enables printing of characters in upper ASCII code range (128 to 159).
Cancel Printing of Upper Range Control Codes	ASCII: ESC 7 Dec: 27 55 Hex: 1B 37	Cancels ESC 6 command.
Bar Code Commands		

Select Industrial Bar Code Type and Size	ASCII: ESC DLE A m n_1 ... n_8 Dec: 27 16 65 m n_1 ... n_8 Hex: 1B 10 41 m n_1 ... n_8	OKI unique command m = number of parameters specified (m = 0, 1 or 3: command ignored) n_1, n_2: selects bar code style n_1, n_2 = 0, 1: EAN8 n_1, n_2 = 0, 2: EAN13 n_1, n_2 = 1, 0: UPC-A n_1, n_2 = 1, 4: UPC-E n_1, n_2 = 2, 0: Code 39 n_1, n_2 = 3,0: Interleaved 2 of 5 n_1, n_2 = 4, 0: Code 128 (Set A) n_1, n_2 = 4, 1: Code 128 (Set B) n_1, n_2 = 4, 2: Code 128 (Set C) n_3, n_4: sets vertical length of bars, in units of 15/180", calculated as ([n_3 x 10] + n_4) x 15/180" n_5: sets black bars; n_5 = 1 to 7 n_6: sets spacing; n_6 = 1 to 7 n_7: sets ratio of wide element to narrow element; n_7 = 1 to 7 n_8: specifies whether or not characters are to be attached n_8 = 0: characters not attached n_8 = 1 or more: LQ characters attached
Print Industrial Bar Code Data	ASCII: ESC DLE B m n [data] Dec: 27 16 66 m n [data] Hex: 1B 10 42 m n [data]	Prints bar code data. m = amount of data (in bytes) to follow n specifies Code 128 mode (when Code 128 is selected): n = 65: Set A n = 66: Set B n = 67: Set C
Select and Print Postnet Bar Code Data	ASCII: ESC DLE C n [data] Dec: 27 16 67 n [data] Hex: 1B 10 43 n [data]	n = amount of data (in bytes) to follow: n = 1 to 20 Data consists of single-digit numbers (0 to 9).
Print Features		
Utility/LQ Selection	ASCII: ESC x n Dec: 27 120 n Hex: 1B 78	n = 0: Utility printing n = 1: LQ printing
HSD/NLQ Selection	ASCII: ESC (n Dec: 27 40 n Hex: 1B 28 n	n = 0: HSD printing (15 or 18 cpi) n = 2: NLQ printing
Select LQ Typeface	ASCII: ESC k n Dec: 27 107 n Hex: 1B 6B n	n = 0: Roman n = 1: Swiss n = 2: Courier n = 3: Prestige n = 7: Orator n = 122: Swiss Bold n = 124: Gothicn = 126: Menu setting
Proportional Spacing	ASCII: ESC p n Dec: 27 112 n Hex: 1B 70 n	See also ESC ! n command. n = 1: Start proportional spacing n = 0: Stop proportional spacing
Select 10 cpi Pitch (Pica)	ASCII: ESC P Dec: 27 80 Hex: 1B 50	Normally, selects 10 cpi (Pica). In compressed mode, selects 17.1 cpi.

Select 12 cpi Pitch (Elite)	ASCII: ESC M Dec: 27 77 Hex: 1B 4D	Normally, selects 12 cpi (Elite). In compressed mode, selects 20 cpi.
Select 15 cpi Pitch	ASCII: ESC g Dec: 27 103 Hex: 1B 67	Selects 15 cpi pitch.
Select Compressed Print	ASCII: SI or ESC SI Dec: 15 or 27 15 Hex: 0F or 1B 0F	Pitch depends on current pitch selected: 10 cpi becomes 17.1 cpi 12 cpi becomes 20 cpi
Cancel Compressed Print	ASCII: DC2 Dec: 18 Hex: 12	Cancels 15 cpi print selected by SI or ESC SI command.
Set Character Spacing	ASCII: ESC SP n Dec: 27 32 n Hex: 1B 20 n	Adds n dots of space (depending on the current pitch) between characters. n = 0 to 127
Select Italic Characters	ASCII: ESC 4 Dec: 27 52 Hex: 1B 34	See also ESC ! n, ESC 7.
Cancel Italics	ASCII: ESC 5 Dec: 27 53 Hex: 1B 35	Clears italic printing engaged by ESC 4 command.
Turn Underlining On/Off	ASCII: ESC n Dec: 27 45 n Hex: 1B 2D n	Underlines all text except tabs. n = 1: Start underlining n = 0: Stop underlining
Start Superscript/Subscript	ASCII: ESC S n Dec: 27 83 n Hex: 1B 53 n	n = 0: Start superscript n = 1: Start subscript
Stop Superscript/Subscript	ASCII: ESC T Dec: 27 84 Hex: 1B 54	
Select Character Style (normal, shadow, outline, outline & shadow)	ASCII: ESC q n Dec: 27 113 n Hex: 1B 71 n	n = 0: Normal n = 1: Outline n = 2: Shadow n = 3: Outline with shadow
Start Emphasized Printing	ASCII: ESC E Dec: 27 69 Hex: 1B 45	Prints horizontally shifted double dots in utility mode at half speed. See also ESC ! n command. Overrides Menu until Initialize, Software I-PRIME or Change Emulation command is received, or until printer is turned off.
Stop Emphasized Printing	ASCII: ESC F Dec: 27 70 Hex: 1B 46	Clears emphasized printing engaged by ESC E command.
Start Enhanced (Double Strike) Printing	ASCII: ESC G Dec: 27 71 Hex: 1B 47	Prints vertically shifted double dots in two passes. See also ESC ! n command.
Stop Enhanced Printing	ASCII: ESC H Dec: 27 72 Hex: 1B 48	Clears double strike printing set by ESC G command.

Double Width (Expanded) Printing	ASCII: ESC W n Dec: 27 87 n Hex: 1B 57 n	n = 2: Start triple width printing n = 1: Start double width printing n = 0: Stop double or triple width printing
Immediate Double Width	ASCII: SO or ESC SO Dec: 14 or 27 14 Hex: 0E or 1B 0E	Prints double width only to end of line; can also be canceled by DC4, ESC W 0 and ESC ! n.
Stop Immediate Double Width Printing	ASCII: DC4 Dec: 20 Hex: 14	Only cancels double width set by SO or ESC SO.
Start Triple Width Printing	ASCII: ESC m Dec: 27 109 Hex: 1B 6D	Canceled by ESC W 0 and ESC ! n.
Double Height Printing	ASCII: ESC w n or ESC US n Dec: 27 119 n or 27 31 n Hex: 1B 77 n or 1B 1F n	OKI unique command n = 2: Start triple height n = 1: Start double height n = 0: Stop double or triple height
Graphics, 8 & 24-Pin Mode **Note:** For all graphics commands the number of dot columns of graphic data is as follows: dots = n_1 + (n_2 x 256)		
Graphics Select/Print	ASCII: ESC * m n_1 n_2 [graphic data] Dec: 27 42 m n_1 n_2 [graphic data] Hex: 1B 2A m n_1 n_2 [graphic data]	Selects 8-pin and 24-pin graphic modes and prints graphic data. m = 0: Single density, 8-pin 60 dpi m = 1: Double density, 8-pin, 120 dpi m = 2: Double speed, double density, 8-pin, quasi-120 dpi (dots can not be printed directly adjacent to one another) m = 3: Quadruple density, 8-pin, quasi240 dpi (dots can not be printed directly adjacent to one another) m = 4: CRT I, 8-pin, 80 dpi m = 6: CRT II, 8-pin, 90 dpi m = 32: Single density, 24-pin, 60 dpi m = 33: Double density, 24-pin, 120 dpi m = 38: CRT III, 24-pin, 90 dpi m = 39: Triple density, 24-pin, 180 dpi m = 40: Hex-density, 24-pin, quasi-360 dpi (dots can not be printed directly adjacent to one another) n_1, n_2 = 0 to 255: specifies amount of subsequent Bit Image bytes received, calculated as n_1 + (n_2 x 256)
Graphics, 8-Pin Mode		

Single Density Graphics	ASCII: ESC K n_1 n_2 [graphic data] Dec: 27 75 n_1 n_2 [graphic data] Hex: 1B 4B n_1 n_2 [graphic data]	Dot density 60 dpi horizontal Maximum data per line: 816 bytes n_1, n_2 = 0 to 255: specifies amount of subsequent Bit Image bytes received, calculated as n_1 + (n_2 x 256)
Double Density Graphics	ASCII: ESC L n_1 n_2 [graphic data] Dec: 27 76 n_1 n_2 [graphic data] Hex: 1B 4C n_1 n_2 [graphic data]	Dot density 120 dpi horizontal Maximum data per line: 1632 n_1, n_2 = 0 to 255: specifies amount of subsequent Bit Image bytes received, calculated as n_1 + (n_2 x 256)
Double Density/ Double Speed Graphics	ASCII: ESC Y n_1 n_2 [graphic data] Dec: 27 89 n_1 n_2 [graphic data] Hex: 1B 59 n_1 n_2 [graphic data]	Same as double density graphics (120 dpi), but printer can't put two adjacent dots in the same row.
Quadruple Density Graphics	ASCII: ESC Z n_1 n_2 [graphic data] Dec: 27 90 n_1 n_2 [graphic data] Hex: 1B 5A n_1 n_2 [graphic data]	Dot density 240 dpi horizontal. Printer can't put two adjacent dots in the same row. Maximum data per line: 3264 n_1, n_2 = 0 to 255: specifies amount of subsequent Bit Image bytes received, calculated as n_1 + (n_2 x 256)
Quasi Double Density Graphics	ASCII: ESC y n Dec: 27 121 n Hex: 1B 79 n	n = 0: Turn off quasi 8-bit graphics n = 1: Turn on quasi 8-bit graphics
Reassign Graphics	ASCII: ESC ? m n Dec: 27 63 m n Hex: 1B 3F m n	Converts ESC K, ESC L, ESC Y, or ESC Z command to a graphics select command: For ESC K: m = 75 For ESC Y: m = 89 For ESC L: m = 76 For ESC Z: m = 90 n = 0: Single density, 8-pin 60 dpi n = 1: Double density, 8-pin, 120 dpi n = 2: Double speed, double density, 8-pin, quasi-120 dpi (dots can not be printed directly adjacent to one another) n = 3: Quadruple density, 8-pin, quasi240 dpi (dots can not be printed directly adjacent to one another) n = 4: CRT I, 8-pin, 80 dpi n = 6: CRT II, 8-pin, 90 dpi n = 32: Single density, 24-pin, 60 dpi n = 33: Double density, 24-pin, 120 dpi n = 38: CRT III, 24-pin, 90 dpi n = 39: Triple density, 24-pin, 180 dpi n = 40: Hex-density, 24-pin, quasi-360 dpi (dots can not be printed directly adjacent to one another)
Composite Command	ASCII: ESC ! n Dec: 27 33 n Hex: 1B 21 n	Calculate n as the sum of the values of the features to be activated. If a feature's value is not included in the sum, it will be deactivated. n = 0: 10 cpi n = 16: Enhanced n = 1: 12 cpi n = 32: Double width n = 2: Proportional spacing n = 64: Italics n = 4: Compressed n = 128: Underlining n = 8: Emphasized

Miscellaneous Commands		
Select Emulation Mode.	ASCII: ESC { n Dec: 27 123 n Hex: 1B 7B n	OKI unique command. Switches printer emulation mode, copying the custom character data in buffer and saving the print and receive buffers. Menu settings unaffected. n = 0, 2: IBM XL24 Proprinter n = 3: IBM XL24 AGM n = 66: Epson LQ 850, Epson LQ 1050
Select Color (color ribbon installed)	ASCII: ESC r n Dec: 27 114 n Hex: 1B 72 n	Selects print color mode as follows: n = 0: black n = 1: magenta n = 2: cyan n = 3: violet (produced in two superimposed printing passes, magenta/cyan) n = 4: yellow n = 5: orange (produced in two superimposed printing passes, yellow/magenta) n = 6: green (produced in two superimposed printing passes, yellow/cyan) This command will be ignored if the Ribbon Selection in the Menu has been set to Black.
Initialize Printer	ASCII: ESC @ Dec: 27 64 Hex: 1B 40	Clears print buffer (receive buffer unaffected), resets printer to menu defaults, current position becomes top of page. Custom character data is not touched. This command is acknowledged only if Reset Inhibit in Menu is set to No (factory default).
Cancel	ASCII: CAN Dec: 24 Hex: 18	Clears print buffer (receive buffer unaffected) and executes carriage return; commands and custom character data unaffected.
Set Most Significant Bit (MSB) to 1	ASCII: ESC > Dec: 27 62 Hex: 1B 3E	Sets the MSB (8th bit) to 1 (Shift Out character set).
Set Most Significant Bit (MSB) to 0	ASCII: ESC = Dec: 27 61 Hex: 1B 3D	Sets the MSB (8th bit) to 0 (Shift In character set).
Reset Most Significant Bit (MSB)	ASCII: ESC # Dec: 27 35 Hex: 1B 23	Cancels ESC > or ESC =. MSB accepted ``as is" from computer.
Print Suppress Mode On	ASCII: DC3 Dec: 19 Hex: 13	Places printer in Print Suppress Mode after printing data in print buffer. Ignores all further commands except DC1 command. Print Suppress Effective item in Menu must be set to Yes for this command to take effect.
Print Suppress Mode Off	ASCII: DC1 Dec: 17 Hex: 11	Clears Print Suppress Mode, re-activating printer to once again process all data received.

Disable **Paper-Out Sensor**	ASCII: ESC 8 Dec: 27 56 Hex: 1B 38	OKI unique command. Disables paperout sensor, even if Paper Out Override in Menu is set to On the (factory default). If data flows onto next page and reaches top of form setting for that page, printer ALARM light will come on to indicate paper-out error.
Enable **Paper-Out Sensor**	ASCII: ESC 9 Dec: 27 57 Hex: 1B 39	OKI unique command. Enables paperout sensor to detect when less than 1/2" of paper is left. When ALARM light is on, pressing SELECT prints 1 line of data at a time until the top of from setting for the next page is reached. Sensor can also be controlled by the menu.
Half-Speed Printing On/Off	ASCII: ESC s n Dec: 27 115 n Hex: 1B 73 n	Prints at 50% of normal speed to reduce noise. n = 1: Half-speed printing On n = 0: Half-speed printing Off

IBM Commands

IBM Commands

This section contains the commands for the IBM XL24 Proprinter and XL24 AGM emulations, grouped by function.

Note: Normally the commands in this table will override the Menu settings. Except as noted, these commands are canceled and the printer returns to the factory and Menu settings when the printer receives an Initialization, Software I-Prime, or Change Emulation command, or when it is turned off and then on again.

IBM Function	Command	Notes
Horizontal Control		
Carriage Return	ASCII: CR Dec: 13 Hex: 0D	Prints data in buffer and performs carriage return.
Set Horizontal Tabs	ASCII: ESC D n_1 n_2 ... n_k NUL Dec: 27 68 n_1 n_2 ... n_k 0 Hex: 1B 44 n_1 n_2 ... n_k 00	Sets horizontal tab stop positions n = 1 to 255: specifies position of tab stopmaximum is number of characters per line k = 1 to 28; n1 = 0: clear tabs Default: every 8 columns
Horizontal Tab	ASCII: HT Dec: 9 Hex: 09	Moves to next horizontal tab stop
Reset Tabs to Default	ASCII: ESC R Dec: 27 82 Hex: 1B 52	Resets horizontal tabs for default: every 8th character. Also resets vertical tabs to default of 1 line.
Set Left & Right Margins	ASCII: ESC X n m Dec: 27 88 n m Hex: 1B 58 n m	Sets left (n) and right (m) margins in character columns at current pitch. Once set, margins remain fixed even if character pitch is changed. n = 0 to 255; n = 0: left margin unchanged m = 0 to 255; m = 0: right margin unchanged *m must be at least 1 character space (at 10 cpi) to the right of n.*
Start/Stop Unidirectional Printing	ASCII: ESC U n Dec: 27 85 n Hex: 1B 55 n	n = 1: Unidirectional printing On n = 0: Unidirectional printing Off (return to bidirectional)
Backspace	ASCII: BS Dec: 8 Hex: 08	Prints data in buffer and moves one character to the left according to current character pitch.

Set Print Position	ASCII: ESC DLE @ P_n A_1 A_2 P_1 P_2 P_3 P_4 Dec: 27 16 64 [data] Hex: 1B 10 40 [data]	OKI unique command. Sets horizontal position of printhead. P_n specifies number of bytes to follow, range 0 to 127 (MSB ignored) A_1 specifies if motion is absolute (even number) or relative (odd number) A_2 specifies direction of relative movement right (even number) or left (odd number) $P_1P_2P_3P_4$ = 4-digit number specifying print position. Unit of print position is 1/360" in LQ mode; 1/240" in Utility mode. Maximum default value for left and right margins: 4896.
Set Relative Print Position	ASCII: ESC d n_1 n_2 Dec: 27 100 n_1 n_2 Hex: 1B 64 n_1 n_2	n_1, n_2 = 0 to 255 1 n_1 + (n_2 x 256) 1632
Vertical Control		
Set 1/8" Line Spacing	ASCII: ESC 0 Dec: 27 48 Hex: 1B 30	1/8" Line Spacing = 8 lines per inch.
Set 7/72" Line Spacing	ASCII: ESC 1 Dec: 27 49 Hex: 1B 31	This is the line spacing used for graphics.
Activate Line Spacing	ASCII: ESC 2 Dec: 27 50 Hex: 1B 32	This command is required to activate the line spacing set by the ESC A n command (see below).
Set n/60" Line Spacing	ASCII: ESC A n Dec: 27 65 n Hex: 1B 41 n	n = 1 to 255 n = 0: no change in line spacing.
Set n/360" Line Spacing	ASCII: ESC % 8 n Dec: 27 37 56 n Hex: 1B 25 38 n	OKI unique command. Sets line spacing to n/360". n = 1 to 255 n = 0: no line feed
Set n/216" or n/180" Line Spacing	ASCII: ESC 3 n Dec: 27 51 n Hex: 1B 33 n	n = 1 to 255 n = 0: command is ignored
Set Line Feed Increments	ASCII: ESC [\ n_1 n_2 g_1 g_2 Dec: 27 91 92 n_1 n_2 g_1 g_2 Hex: 1B 5B 5C n_1 n_2 g_1 g_2	n_1 = 0 to 255 n_2 = 0 to 255 0 n_1 + (n_2 x 256) 65535 g_1 + g_2 = 180 or 216: sets increment
Line Feed	ASCII: LF Dec: 10 Hex: 0A	Prints buffer data and moves printhead down by current line spacing value. In PPR emulation, performs carriage return only if Auto CR in Menu has been changed to Yes (factory default is No). In AGM emulation performs carriage return regardless of Auto CR setting.

Automatic Line Feed	ASCII: ESC 5 n Dec: 27 53 n Hex: 1B 35 n	n = 0: Deactivate auto line feed n = 1: Activate auto line feed
Reverse Line Feed	ASCII: ESC] Dec: 27 93 Hex: 1B 5D	Prints buffer data and perofrms one reverse line feed at the current line spacing. Movement will not go above top of form. Not recommended for use with optional pull tractor.
n/360" Line Feed	ASCII: ESC % 4 n Dec: 27 37 52 n Hex: 1B 25 34 n	OKI unique command. Prints data in buffer and executes a single n/360" line feed without changing line spacing. n = 1 to 255 n = 0: no line feed
n/216" or n/180" Line Feed	ASCII: ESC J n Dec: 27 74 n Hex: 1B 4A n	In PPR emulation, prints data in buffer and executes a single n/216" line feed; in AGM emulation, executes a single n/180" line feed, both without changing line spacing. Carriage Return determined by Menu setting. n = 1 to 255 n = 0: no line feed
Form Feed	ASCII: FF Dec: 12 Hex: 0C	Prints data in buffer and advances paper to next top of form. With Cut Sheet Feeder installed, will eject or insert paper depending on status of feeder.
Vertical Tab	ASCII: VT Dec: 11 Hex: 0B	Prints buffer data and moves to next vertical tab stop.
Set Vertical Tab Stops	ASCII: ESC B n_1 n_2 ... n_k NUL Dec: 27 66 n_1 n_2 ... n_k 0 Hex: 1B 42 n_1 n_2 ... n_k 00	Sets vertical tab stops at specified lines. k = 1 to 64: number of tabs n = 1 to 255: line number where tab is to be set
Set Page Length Inches	ASCII: ESC C NUL n Dec: 27 67 0 n Hex: 1B 43 00 n	Sets page length inches. n = 1" to 255" n = 0: Command ignored This command cancels Skip Over Perforation setting.
Set Page Length in Lines	ASCII: ESC C n Dec: 27 67 n Hex: 1B 43 n	Sets page length in lines, relative to currently selected line spacing, calculated by multiplying value of n by line spacing ratio. n = 1 to 127, Epson emulation n = 1 to 255, IBM emulation This command cancels Skip Over Perforation setting.
Set Skip Over Perforation	ASCII: ESC N n Dec: 27 78 n Hex: 1B 4E n	Activates Skip Over Perforation feature and sets it for n lines at the current line spacing. When the printer reaches the bottom of the page, it will skip n lines to next top of form. Command overrides menu. n = 1 to 255 lines n = 0: command ignored
Cancel Skip Over Perforation	ASCII: ESC O Dec: 27 79 Hex: 1B 4F	Deactivates Skip Over Perforation. Command overrides menu.

Set Top of Form	ASCII: ESC 4 Dec: 27 52 Hex: 1B 34	Sets top of form at current printhead position. Command ignored in CSF or Auto-Feed mode.
Cut Sheet Feeder (Option)		
Cut Sheet Feeder Control	ASCII: ESC EM n Dec: 27 25 n Hex: 1B 19 n	OKI unique command. Controls Cut Sheet Feeder accessory. n = 1: Select bin 1 n = 2: Select bin 2 (if present) n = 73 (ASCII ``I"): Insert sheet n = 82 (ASCII ``R"): Eject sheet
Character Sets		
Down Line Load	ASCII: ESC = l h # a_1 a_2 Dec: 27 61 l h 35 a_1 a_2 Hex: 1B 3D l h 23 a_1 a_2	Initializes down line loading l, h = 0 to 255: specifies number of bytes to follow, calculated as l + (h x 256) a_1, a_2 = 0 to 255: indicate storing address of loading data, calculated as a_1 + (a_2 x 256)
Select International Character Set	ASCII: ESC ! n Dec: 27 33 n Hex: 1B 21 n	OKI unique command. Selects character set containing special characters used in foreign language printing: n = 64: US ASCII, slashed zero n = 71: Norwegian n = 65: US ASCII (unslashed zero) n = 72: Dutch n = 66: British n = 73: Italian n = 67: German n = 74: French Canadian n = 68: French n = 75: Spanish n = 69: Swedish n = 76: Latin American n = 70: Danish n = 90: Publisher
Print from IBM Character Set III	ASCII: ESC \ n_1 n_2 Dec: 27 92 n_1 n_2 Hex: 1B 5C n_1 n_2	This character set includes printable characters for commands. Specify total number of characters to be printed, calculated as n_1 + (n_2 x 256).
Print One Character from IBM Character Set III	ASCII: ESC ^ n Dec: 27 94 n Hex: 1B 5E n	Prints character n from IBM Character Set III. n = 0 to 255
Select IBM Character Set I	ASCII: ESC 7 Dec: 27 55 Hex: 1B 37	Selects IBM Character Set I
Select IBM Character Set II	ASCII: ESC 6 Dec: 27 54 Hex: 1B 36	Selects IBM Character Set II
Bar Code Commands		

Select Industrial Bar Code Type and Size	ASCII: ESC DLE A m n_1 ... n_8 Dec: 27 16 65 m n_1 ... n_8 Hex: 1B 10 41 m n_1 ... n_8	OKI unique command m = number of parameters specified (m = 0, 1 or 3: command ignored) n_1, n_2: selects bar code style n_1, n_2 = 0, 1: EAN8 n_1, n_2 = 0, 2: EAN13 n_1, n_2 = 1, 0: UPC-A n_1, n_2 = 1, 4: UPC-E n_1, n_2 = 2, 0: Code 39 n_1, n_2 = 3,0: Interleaved 2 of 5 n_1, n_2 = 4, 0: Code 128 (Set A) n_1, n_2 = 4, 1: Code 128 (Set B) n_1, n_2 = 4, 2: Code 128 (Set C) n_3, n_4: sets vertical length of bars, in units of 15/180", calculated as ([n_3 x 10] + n_4) x 15/180" n_5: sets black bars; n_5 = 1 to 7 n_6: sets spacing; n_6 = 1 to 7 n_7: sets ratio of wide element to narrow element; n_7 = 1 to 7 n_8: specifies whether or not characters are to be attached n_8 = 0: characters not attached n_8 = 1 or more: LQ characters attached
Print Industrial Bar Code Data	ASCII: ESC DLE B n m [data] Dec: 27 16 66 n m [data] Hex: 1B 10 42 n m [data]	OKI unique command n: specifies amount of data to follow m: selects Code 128 mode (Code 128 must be selected for this command to be recognized) m = 65: Set A m = 66: Set B m = 67: Set C
Select and Print Postnet Bar Code Data	ASCII: ESC DLE C n [data] Dec: 27 16 67 n [data] Hex: 1B 10 43 n [data]	OKI unique command. n: designates amount of data to follow n = 1 to 20 Data consists of single-digit numbers.
Print Features		
Select LQ Typeface	ASCII: ESC k n Dec: 27 107 n Hex: 1B 6B n	OKI unique command. Selects typeface according to value of n: n = 0: Roman n = 7: Orator n = 1: Swiss n = 122: Swiss Bold n = 2: Courier n = 124: Gothic n = 3: Prestigen = 254: Menu setting
Proportional Spacing	ASCII: ESC P n Dec: 27 80 n Hex: 1B 50 n	Controls proportional spacing n = 0 to 255: n = odd number: start proportional spacing n = even number: stop proportional spacing When printer is in utility mode, this command will switch it to LQ proportional until it is canceled.
Set 10 Cpi Pitch	ASCII: DC2 Dec: 18 Hex: 12	This is standard pica typewriter size.

Set 12 Cpi Pitch	ASCII: ESC : Dec: 27 58 Hex: 1B 3A	Changes to 12 cpi except if Menu item ``SI Select (12 CPI)" is set to ``20", then ESC : will change 17.1 cpi to 20 cpi and will not change 20 cpi.
Set 15 Cpi Pitch	ASCII: ESC g Dec: 27 103 Hex: 1B 67	OKI unique command. Sets 15 cpi.
Set Compressed Pitch	ASCII: SI Dec: 15 Hex: 0F	Sets 17.1 cpi
Set 20 Cpi Pitch	ASCII: ESC SI Dec: 27 15 Hex: 1B 0F	OKI unique command.
Select HSD or NLQ	ASCII: ESC (n Dec: 27 40 n Hex: 1B 28 n	Selects High Speed Draft or Near Letter Quality print mode as follows: n = 0: HSD mode. n = 1: NLQ mode.
Select Print Parameters	ASCII: ESC I n Dec: 27 73 n Hex: 1B 49 n	Selects pitch, print mode and ROM versus RAM Custom Graphics, according to the value of n: n = 0: 10 cpi, utility (UTL), ROM n = 14: 12 cpi, LQ, RAM n = 2: 10 cpi, letter quality (LQ), ROM n = 16: 17 cpi, UTL, ROM n = 3: Proportional, LQ, ROM n = 18: 17 cpi, LQ, ROM n = 4: 10 cpi, UTL, RAM n = 20: 17 cpi, UTL, RAM n = 6: 10 cpi, LQ, RAM n = 22: 17 cpi, LQ, RAM n = 7: Proportional, LQ, RAM n = 24: 15 cpi, UTL, ROM n = 8: 12 cpi, UTL, ROM n = 26: 15 cpi, LQ, ROM n = 10: 12 cpi, LQ, ROM n = 32: 20 cpi, UTL, ROM n = 12: 12 cpi, UTL, RAM n = 34: 20 cpi, LQ, ROM
Start Italic Printing	ASCII: ESC % G Dec: 27 37 71 Hex: 1B 25 47	OKI unique command. Italic characters may overlap slightly.
Stop Italic Printing	ASCII: ESC % H Dec: 27 37 72 Hex: 1B 25 48	OKI unique command. Cancels italic printing engaged by ESC % G command.
Underlining	ASCII: ESC n Dec: 27 45 n Hex: 1B 2D n	Underlines all text except tabs. n = 0 to 255 n = odd: start underlining n = even: stop underlining
Start Subscript/Superscript	ASCII: ESC S n Dec: 27 83 n Hex: 1B 53 n	Engages subscript or superscript printing n = 0 to 255 n = odd: start subscript n = even: start superscript

Stop Subscript/Superscript	ASCII: ESC T Dec: 27 84 Hex: 1B 54	Cancels subscript or superscript printing.
Start Emphasized Printing	ASCII: ESC E Dec: 27 69 Hex: 1B 45	Prints horizontally shifted double dots in utility mode at half speed.
Stop Emphasized Printing	ASCII: ESC F Dec: 27 70 Hex: 1B 46	Cancels emphasized printing.
Start Enhanced (Doublestrike) Printing	ASCII: ESC G Dec: 27 71 Hex: 1B 47	Prints vertically shifted double dots in two unidirectional passes.
Stop Enhanced Printing	ASCII: ESC H Dec: 27 72 Hex: 1B 48	Cancels enhanced printing.
Double Width (Expanded) Printing	ASCII: ESC W n Dec: 27 87 n Hex: 1B 57 n	n = odd: start double width printing n = even: stop double width printing
Immediate Double Width	ASCII: SO Dec: 14 Hex: 0E	Prints double width only to end of line; can be canceled by DC4, CAN, or ESC W 1 command.
Stop Immediate Double Width Printing	ASCII: DC4 Dec: 20 Hex: 14	Cancels double width set by SO command
Start Triple Width Printing	ASCII: ESC m Dec: 27 109 Hex: 1B 6D	Triple wide printing will be stopped by ESC W 0 command.
Control Double Height/Width	ASCII: ESC [@ l m n_1 n_2 n_3 n_4 Dec: 27 91 64 l m n_1 n_2 n_3 n_4 Hex: 1B 5B 40 l m n_1 n_2 n_3 n_4	Sets double height, double width, or both double height and double width l = 0 to 255 m = 0 to 255 n_1, n_2 ignored n_3: specifies character height and line feed n_3 = 17: single line feed, standard height n_3 = 34: double line feed, double height n_4: specifies character width n_4 = 1: standard width n_4 = 2: double width Command will be ignored when printing bit image graphics.
Overscore	ASCII: ESC _ n Dec: 27 95 n Hex: 1B 5F n	Prints a continuous overscore over all text characters except for tab spaces. n = 0 to 255 n = odd: start overscore n = even: stop overscore

Graphics, 8-Pin Mode ***Note:*** *For all 8-pin graphics commands the number of dot columns of graphic data = n1 + (n2 x 256)*		
Single Density Graphics	ASCII: ESC K n_1 n_2 [graphic data] Dec: 27 75 n_1 n_2 [graphic data] Hex: 1B 4B n_1 n_2 [graphic data]	Dot density 60 dpi horizontal, 72 dpi vertical. Maximum data per line = 816 n_1, n_2 = 0 to 255: specifies amount of subsequent bit image bytes received, calculated as n_1 + (n_2 x 256).
Double Density **Half Speed Graphics**	ASCII: ESC L l h [graphic data] Dec: 27 76 l h [graphic data] Hex: 1B 4C l h [graphic data]	Dot density 120 dpi horizontal, 72 dpi vertical. Maximum data per line: 1632 l, h = 0 to 255: specifies amount of subsequent bit image bytes received, calculated as l + (h x 256).
Double Density **Full Speed Graphics**	ASCII: ESC Y l h [graphic data] Dec: 27 89 l h [graphic data] Hex: 1B 59 l h [graphic data]	Same as low speed double density (120 dpi), but printer can't put two adjacent dots in the same row.
Quasi Double Density Graphics	ASCII: ESC y n Dec: 27 121 n Hex: 1B 79 n	n = 1: Engages Quasi Double Density graphics n = 0: Disengages Quasi Double Density graphics Applies to the following commands: ESC K n_1 n_2 [data] ESC * m n_1 n_2 ESC ? m n
Quadruple Density Graphics	ASCII: ESC Z l h [graphic data] Dec: 27 90 l h [graphic data] Hex: 1B 5A l h [graphic data]	Dot density 240 dpi horizontal, 72 dpi vertical. Printer can't put two adjacent dots in the same row. Maximum data per line: 3264 l, h = 0 to 255: specifies amount of subsequent bit image bytes received, calculated as l + (h x 256).
Graphics, 8 & 24-Pin Mode		

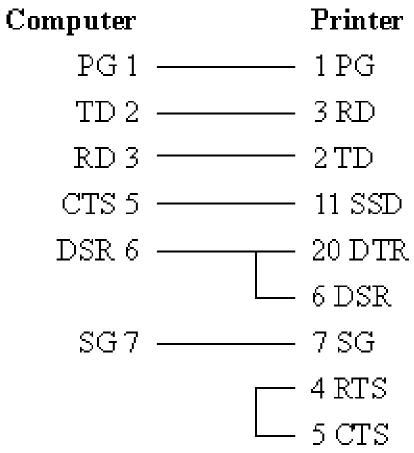
Graphics Select/Print	ASCII: ESC * m n_1 n_2 [graphic data] Dec: 27 42 m n_1 n_2 [graphic data] Hex: 1B 2A m n_1 n_2 [graphic data]	Selects 8-pin and 24-pin graphic modes and prints graphic data. Valid only for IBM AGM. m = 0: Single density, 8-pin, 60 dpi m = 1: Double density, 8-pin, 120 dpi m = 2: Double speed, double density, 8-pin, quasi-120 dpi (dots can not be printed directly adjacent to one another) m = 3: Quadruple density, 8-pin, quasi-240 dpi (dots can not be printed directly adjacent to one another) m = 4: CRT I, 8-pin, 80 dpi m = 6: CRT II, 8-pin, 90 dpi m = 32: Single density, 24-pin, 60 dpi m = 33: Double density, 24-pin, 120 dpi m = 38: CRT III, 24-pin, 90 dpi m = 39: Triple density, 24-pin, 180 dpi m = 40: Hex-density, 24-pin, quasi-360 dpi (dots can not be printed directly adjacent to one another) n_1, n_2 = 0 to 255: specifies amount of subsequent bit image bytes received, calculated as n_1 + (n_2 x 256)
Graphics Select	ASCII: ESC [g n_1 n_2 m [graphic data] Dec: 27 91 103 n_1 n_2 m [graphic data] Hex: 1B 5B 67 n_1 n_2 m [graphic data]	Selects graphics and prints m = 0: Single density, 8-pin, 60 dpi (same as ESC * 0) m = 1: Double density, 8-pin, 120 dpi (same as ESC * 1) m = 2: Double speed, double density, 8-pin, quasi-120 dpi (same as ESC * 2) m = 3: Quadruple density, 8-pin, quasi-240 dpi (same as ESC * 3) m = 8: Single density, 24-pin, 60 dpi (same as ESC * 32) m = 9: Double density, 24-pin, 120 dpi (same as ESC * 33) m = 11: Triple density, 24-pin, 180 dpi (same as ESC * 39) m = 12: Hex-density, 24-pin, quasi-360 dpi (same as ESC * 40) n_1, n_2 = 0 to 255: specifies amount of subsequent bit image bytes received, calculated as n_1 + (n_2 x 256)
Miscellaneous Commands		
Select Emulation Mode.	ASCII: ESC { n Dec: 27 123 n Hex: 1B 7B n	OKI unique command. Switches printer emulation mode, copying the custom character data in buffer and saving the print and receive buffers. Menu settings unaffected. n = 0, 2: IBM Proprinter n = 3: IBM XL24 AGM n = 64, 66: Epson LQ 850, LQ 1050
Select color (color ribbon installed)	ASCII: ESC r n Dec: 27 114 n Hex: 1B 72 n	OKI unique command. Selects print color mode as follows: n = 0: black n = 1: magenta n = 2: cyan n = 3: violet (two superimposed passes, magenta/cyan) n = 4: yellow n = 5: orange (two superimposed passes, yellow/magenta) n = 6: green (two superimposed passes, yellow/cyan) Command will be ignored if the Ribbon Selection in Menu is set to Black.

Cancel	ASCII: CAN Dec: 24 Hex: 18	Clears buffer and cancels single double-width set by SO or ESC SO command; does not affect custom characters or other commands.
Print Suppress Mode On	ASCII: ESC Q n Dec: 27 81 n Hex: 1B 16 n	Prints out data in print buffer and puts printer in Print Suppress Mode until DC1 command is received. Command will be ignored unless Print Suppress Effective item in Menu is set to Yes. n = 23
Print Suppress Mode Off	ASCII: DC1 Dec: 17 Hex: 11	Cancels Print Suppress Mode. Printer becomes active, processes all data received.
Stop Printing	ASCII: ESC j Dec: 27 106 Hex: 1B 6A	Deselects the printer. Press SELECT to reactivate. No data is lost.
Disable Paper-Out Sensor	ASCII: ESC 8 Dec: 27 56 Hex: 1B 38	Paper-out sensor is deactivated: printer will print to next top of form before registering paper end error. This command will be ignored if the Paper Out Override in Menu is set to No (the factory default).
Enable Paper-Out Sensor	ASCII: ESC 9 Dec: 27 57 Hex: 1B 39	Sensor detects when less than 1/2" of paper is left. When PAPER OUT light is on, pressing SELECT prints 1 line of data at a time until top of form position on next page is reached. Sensor can also be controlled by the Menu.

Appendix D
IBM Serial Cable Configurations

IBM Serial Cable Configurations

IBM 25-Pin Serial Cable Configuration



IBM 9-Pin Serial Cable Configuration

